Author Index, Volume 110

A

Abraham, S., 90, 100.
Adcock, Eugene W. III, 2433.
Ademosun, A. A., 697.
Aftergood, Lilla, 2284.
Agarwal, Kailash Nath, 122.
Agrawal, N. K., 2172.
Ahluwalia, Balwant S., 1185.
Ahluwalia, Gurpreet S., 1185.
Ahokas, Robert A., 883.
Ahrens, Richard A., 725.
Akiba, Yukio, 1112.
Allen-Slater, Roslyn B., 2284.
Allen, C. Eugene, 66, 74, 1169.
Andersen, D. B., 488, 496.
Anderson, D. B., 1785.
Anderson, Garland D., 883.
Anderson, Thomas A., 2374.
Angel, Joseph F., 262.
Anstead, Carole, 1947.
Antal, Magda, 771.
Anthony, Rita Jo, 567.
Ariyoshi, Shujiro, 634, 641.
Arnauld, Jacques, 2480.
Aubert, Roberte, 649.

B

Bach, Andre, 686.
Bailey, J. W., 1785.
Baker, David H., 907, 959.
Baker, George L., 42, 2216.
Baker, Oscar E., 145.
Bar, A., 117.
Bar, Arie, 1929.
Barrows, Kathleen K., 335.
Barsa, Patrice M., 1940.
Bauer, Marthe, 686.
Beach, Richard S., 201, 805.
Beamish, F. William H., 750.
Beck, Bente I., 1935.
Beck, Robert A., 1338.
Behrens, Willy A., 720.
Bell, R. Raines, 778, 1161.
Berdanier, Carolyn D., 286, 298.
Bettger, William J., 50.
Bidlack, Wayne R., 1398.
Bird, Herbert R., 388, 1014.
Birkhofer, Kevin K., 2374.
Bode, Hans H., 1310.
Boebel, Katharine P., 959.
Boris, Alfred, 2291.
Bouillon, Dorothy J., 286.
Bourdel, G., 522.
Bourdel, Geneviève, 610, 1380, 1764, 2302.
Boyle, John T., 169.
Brand, K., 1709.
Brand, Karl, 669.
Brasel, Jo Anne, 600, 2336.
Brielmaier, Janice R., 2065.
Briggs, William T., 223.
Brin, M., 1958.
Brink, John J., 1338.
Britton, Robert A., 1904.
Broderick, Glen A., 2381.
Brown, Denise M., 1432.
Bruckner-Kardoss, Edith, 82.
Buckley, J. Thomas, 675.
Buckley, Wayne T., 974.
Bunk, M. J., 743.
Burger, Warren C., 388, 1014, 1473.
Burke, John F., 1310.
Burrell, Beatrice R., 298.
Buss, Daniel D., 1655.

C

Cardon, Kathleen M., 567.
Carlisle, Edith M., 352, 1046.
Carney, Elizabeth A., 558.
Carr, Rosemary H., 189.
Carroll, Kenneth K., 1676.
Cartwright, Audrey L., 1262.
Cary, Earle E., 1255.
Castell, John D., 1303.
Castledine, Allan J., 675.
Castro, Carmen Elizabeth, 105.
Cataland, Samuel, 1409.
Cerklewski, Florian L., 1453.
Champigny, Odette, 610.
Chan, Alvin C., 66, 74.
Chandra, R. K., 1888.
Chang, Mei Ling W., 931.
Chen, C. J., 2460.
Chen, S. C-H, 1023.
Cheowtirakul, C., 732.
Chibata, Ichiro, 710.
Cho, Ei Soon, 1240.
Chow, C. K., 2460.
Chu, Shu-heh W., 1209, 1217, 2190.
Chu, V., 1793.
Chvapil, Milos, 945, 1319.
Clandinin, Michael T., 1006, 1197.
Clarke, Carolyn C., 1310.
Clarke, Steven D., 1533.
Clawson, Albert J., 1829, 1840.
Clemetson, C. Alan B., 662.
Clifford, A. J., 732, 1793.
Clifford, C. K., 732.
Combs, G. F. Jr., 743.
Connally, Patricia T., 1695.
Conrad, Harry R., 1589.
Corwin, Laurence M., 916, 2497.
Costello, Michael J., 1204.
Cousins, Robert J., 316.
Coward, W. A., 371.

Craig, W. Michael, 2381.
Crandell, Sharon S., 2433.
Crie, J. Stanley, 22.

D

Dadd, R. H., 1152.
Dahlgren, Robert R., 2065.
Deetz, Lawrence E., 1976, 1983.
de Fremery, D., 732.
DeLuca, Hector F., 28, 1573, 2225.
Demuth, Polly, 725.
de Rosa, Guglielmo, 795.
De Tomas, Maria E., 595.
Dill, Charles W., 2254.
Dilts, Preston V. Jr., 883.
Dixit, Padmakar K., 703.
Dong, Faye M., 1274, 2103, 2341.
Draper, H. H., 212, 778, 1161.
Drevon, Christian A., 1935.
Dunn, Michael A., 1865.
Durkot, Michael J., 1310.
Dupont, Jacqueline, 1695.
Dupuis, R., 2310.
Durschlag, Roberta P., 816, 822.

E

Eastwood, M. A., 1130.
Edelstein, Samuel, 1930.
Edens, F. W., 784, 837.
Eisen, Eugene J., 1262.
Eisner, U., 117.
Eklund, Anders, 2321.
Ekstrom, K. E., 1507.
Elkin, Robert G., 130.
Elliott, James G., 1488.
Ellis, Rex, 1037, 2000.
Elson, Charles E., 1473.
Endemann, G., 1497.
Erdman, John W. Jr., 343.
Erickson, Kent L., 1555.
Eshiett, N. O., 697.
Etherton, Terry D., 1169.
Evans, Gary W., 1076, 2121.

F

Fang, M. M., 1032.
Farmer, Bonnie R., 1703.
Faust, Irving M., 2027.
Featherston, W. R., 130.
Fellers, David A., 2263, 2272.
Filer, L. J. Jr., 42, 2216.
Filipski, R., 1372, 1958.
Fillios, Louis C., 324.
Fink, Paula C., 1629.
Finley, John W., 907.
Flanagan, Peter R., 1754.
Flegal, Katherine M., 1255.
Fleischer, Susan, 231.
Fomon, Samuel J., 2374.
Forbes, Richard M., 1610.
Forman, Lawrence P., 1992.
Forsyth, Dale M., 1914.
Forsythe, W. A., 2467.
Franz, Kay B., 2263, 2272.
Freedland, Richard A., 2341, 2365.
Friedman, Morton H., 2078.
Fujisaki, Yasuhiko, 360.
Fukuda, E., 1664.
Fukuda, Eiko, 924, 1138.
Fullmer, Curtis S., 1813.
Furuta, Hiromi, 513.

G

Gabriel, E., 1958.
Gabriel, Edda, 1372.
Gabrielsen, Bjørn O., 1089, 1096.
Gallaher, Daniel, 584, 591.
Galler, Janina R., 231, 1291, 1298.
Ganguli, N. C., 1144.
Ganguly, Jagannath, 2149.
Gardner, Lilly B., 1409.
Garlich, J. D., 784, 837.
Gerber, Leonard E., 343.
Gershwin, M. Eric, 201, 805, 1555.
Ghishan, Fayez K., 1622.
Gibby, Wendell A., 2117.
Gibson, Robert A., 1671.
Girard-Globa, Anik, 1380, 1764, 2302.
Glauber, James G., 1391.
Glover, David V., 1061.
Goelling, Barbara, 1947.
Gold, Armand, 2490.
Gordon, Phil R., 2125.
Gotoh, Yasunori, 158.
Goubern, M., 522.
Graham, George G., 1061, 1070, 1849.
Graves, Karen L., 2420.
Greenwood, M. R. C., 600.
Greger, J. L., 2243.
Gregory, Jesse F. III, 995.
Griel, Lester C. Jr., 1983.
Grogan, W. McLean, 248.
Grosse-Oetringhaus, Sylvia, 1122.
Grunes, D. L., 1365.
Gubler, Clark J., 2117.
Guilarte, Tomas R., 954.
Gupta, Ram Devi, 122.
Gurr, Michael I., 532.

H

Hahn, P., 330.
Haist, James, 1754.
Halas, Edward S., 1858.
Halloran, Bernard P., 1573.
Halverson, Andrew W., 145.
Hamm, Michael W., 1597, 1655.
Hannappel, Ewald, 669.
Hansen, Debra, 1880.
Harmuth-Hoene, Anna-Elisabeth, 1774.
Harper, Alfred E., 394.
Hartman, Wilburta J., 1274, 2103.
Hartsook, E. W., 1865.
Hassanali, S., 330.
Hauschildt, S., 1709.
Hayase, Kazutoshi, 1327.
Hayes, K. C., 2058.

Heeg, Thomas R., 335.
Hegarty, P. Vincent J., 66, 74.
Hegsted, D. M., 1209, 1217, 2198.
Henderson, LaVell M., 1597, 1655.
Hendricks, Deloy G., 567, 1703.
Herbein, Joseph H., 2355.
Herbst, Barbara J., 725.
Heresi, Gloria, 1888.
Hevia, Patricio, 1224, 1231.
Higashi, Taneaki, 409.
Higgins, Edwin S., 248.
Hill, C. H., 433.
Hill, Charles H., 2095.
Hill, Eldon G., 1057.
Hill, G. M., 2467.
Hillard, Bruce L., 1533.
Hilton, J. W., 2527.
Hilton, Mary A., 2409.
Hincenbergs, I., 1497.
Hirsch, Jules, 2027.
Hitier, Y., 522.
Hitier, Yvonne, 610.
Ho, C. Y., 1793.
Hodson, P. V., 2527.
Hoehn, Susan K., 2085.
Holman, Ralph T., 1057.
Holmes, Donald H., 2159.
Holmlund, Chester E., 2113.
Holub, B. J., 488, 496.
Hopkins, Daniel T., 829, 2065.
Horn, L. R., 1958.
Horn, P. L., 200.
Horne, Donald W., 223.
Horton, Edward S., 1421.
Horvath, C., 2310.
Hove, Edwin L., 1736.
Hsieh, H. Steve, 1581.
Hsu, J. Y., 1727.
Huang, P. C., 1727.
Huff, Murray W., 1676.
Hunter, Brian, 1319.
Huntington, Gerald B., 1904.
Hurley, James F., 2291.
Hurley, Lucille S., 201, 575, 591, 795, 805, 897, 2414.
Hurwitz, S., 117, 139, 270.
Hurwitz, Shmuel, 1930.

I

Ide, Takashi, 158, 360.
Ikumo, Haruhisa, 2045, 2051.
Indrieri, Richard J., 2444.
Inhorn, R. C., 2225.
Innis, Sheila M., 1006.
Inoguchi, K., 1664.
Iritani, N., 1664.
Iritani, Nobuko, 924, 1138.
Itoh, Hiroshi, 710.
Iwasawa, Yasuo, 710.

J

Jacobson, Norman L., 335.
James, Kerry A. C., 1736.
Janghorbani, Morteza, 2190.
Jarboe, George E., 1641.
Jarowski, Charles I., 1194.
Jarrousse, Claire, 1764.
Jasper, Hector G., 2336.
Jaya Rao, Kamala S., 868.
Jenkins, Joseph T., 1622.
Johnson, Elaine C., 1076, 2121.
Johnson, Margaret A., 931.
Johnston, Patricia V., 1922, 2027.
Jukes, Thomas H., 17.

K

Kanfer, Julian N., 2085.
Kanich, Robert E., 2396.
Kanto, Uthai, 1829, 1840.
Kari, Frank W., 1224, 1231.
Kato, Norihisa, 1686.
Kaul, Lalita, 1185.
Kava, Ruth, 2350.
Kavanaugh, John F., 1983.
Keen, Carl L., 795, 897, 2414.
Keim, Nancy L., 1354.
Kennedy, Barbara M., 2263, 2272.
Kiewitt, Irmgard, 1122.
Kilgore, L. T., 1032.
Kimura, Toshizo, 513.
Kircher, Ingrid, 1313.
Kirchgessner, Manfred, 469.
Kishi, Tetsuya, 710.
Kitamura, Yohko, 924.
Klasing, Kirk C., 1914.
Kloppel, Thomas M., 1629.
Kneebone, Garry M., 1671.
Knehans, A. W., 1543.
Knight, Cris D., 1914.
Knittle, Jerome L., 1176.
Knuckles, B. E., 732.
Kohler, G. O., 732.
Koldovský, Otakar, 169.
Koo, Sung I., 1813.
Kraueter, Sandra L., 851.
Krook, Lennart P., 1255.
Kuttan, Ramadasan, 1525.

L

Lachance, Paul A., 1488, 2480.
Lamb, Adrian J., 178.
Landmann, Wendell A., 2254.
Lardeux, Bernard, 1380, 1764.
Leach, Roland M. Jr., 448, 460, 795.
Leatherwood, James M., 1262.
Lee, Miyoung K., 725.
Lee Kim, Young-Woo, 394.
Lei, K. Y., 859, 1032.
Leklem, James E., 275, 1819.
Lemonnier, Daniel, 649.
Leveille, Gilbert A., 35.
Levine, Seymour, 891, 1923.
Liao, Teresa H., 2390.
Lin, C. P., 1727.
Lindvall, Ronald N., 2506.
Linkswiler, Hellen M., 305.
Lipshitz, Jeffrey, 883.

Lo, Grace S., 829.
Lönnerdal, Bo., 897, 2414.
Ludwig, Janet C., 945.
Lundin, Paula, 1533.
Lynch, Vincent de Paul, 1194.

M

Machlin, L. J., 1372, 1958.
MacLean, William C. Jr., 1061, 1070, 1849.
Madaras, Judy G., 1391, 2095.
Madvig, Philip, 90, 100.
Mahajan, C. L., 2172.
Mahajan, C. L., 2172.
Mahan, D. C., 1507.
Mahoney, Arthur W., 567, 1703.
Madere, Rene, 720.
Majkowski, Jesse W., 725.
Makishima, Ronald K., 805.
Manchester, Keith L., 241.
Manes, Michael, 231.
Mangat, Surinder, 1880.
Marlett, Judith A., 1354, 2020.
Marquardt, Ronald R., 974.
Martin, Roy J., 1313.
Martin, William G., 2078.
Mateos, Gonzalo G., 1894.
Mathews, Laurel, 1880.
Mathias, Melvin M., 1695.
Matsumoto, Yasushi, 513.
Matsumoto, Tatsuro, 1112.
Mawson, Rodney, 532.
McCormick, Charles C., 784, 837.
McCormick, Donald B., 1940.
McDonnell, Jean E., 2216.
McGilliard, A. Dare, 335.
McIntyre, Patricia A., 954.
McNeill, Carla J., 1555.
Medwadowski, B., 1497.
Mehansho, Haile, 1597, 1655.
Meisler, Natalie T., 1965.
Mellits, E. David, 1849.
Mercer, L. Preston, 2130.
Mercuri, Osvaldo, 595.
Merkens, Louise S., 982.
Michaelis, Otho E. IV, 1409.
Miljanich, P., 1497.
Miller, E. R., 2467.
Miller, Jane S., 1338.
Miller, Lorraine T., 275, 1819.
Miller, M. W., 732.
Miller, Roger, 145.
Misbin, Robert I., 2109.
Mohan, P. S., 868.
Moon, Leonard C., 765.
Moore, Carolyn E., 2284.
Morales, Enrique, 1061.
Morgan, Brian L. G., 416, 425, 618.
Morré, Dorothy M., 1629.
Morris, Eugene R., 1037, 2000.
Morris, James G., 1204, 2444.
Morrison, Seoras D., 2182.
Morriss, Frank H., 2433.
Morrow, Franklin D., 460.
Moscatelli, Ezio A., 50.
Moss, Jesse, 1240.
Munro, Hamish N., 1291, 1298, 2297, 2317.
Mukherjee, Kumar D., 1122.
Muramatsu, Tatsuo, 59.
Murty, Challakonda N., 2231.
Murty, C. N., 2514.
Mykkänen, H. M., 2141.

N

Nahapetian, Aratoonnaz, 1458.
Naismith, Donald J., 618.
Nakashima, Kayoko, 409.
Navia, Juan M., 1581.
N'Diaye, F., 522.
Neel, A. Leah, 1298.
Nelson, J., 1372, 1958.
Nesheim, M. C., 1023.
Neves, L. B., 732.
Nielsen, Forrest H., 965.
Nocek, James E., 2355.
Noda, Katuhiko, 505.
Noff, Dina, 1930.

O

O'Dell, Boyd L., 50, 1543, 2125.
O'Donnell, Joseph A. III, 2365.
Ohara, Ikuo, 634, 641.
Okamatsu, Hirashi, 360.
Okita, Takuo, 505.
Okumura, Jun-ichi, 59.
Oliveira, João S. M., 2035.
Olson, James A., 178.
Omole, T. A., 697.
Opstvedt, Johannes, 1089, 1096.
Ossmann, John B., 1555.
Otsuka, Shin-ichiro, 634, 641.
Ouagued, Malika, 2302.

P

Palmer, Ivan S., 145.
Parker, Helen M., 1610.
Parrish, Rudolph S., 765.
Paul, Ranajit, 2149.
Paynter, David I., 437.
Pearce, J., 255.
Pedersen, Mary E., 481.
Peffers, Diane E., 1819.
Pekkanen, Leena, 937.
Perera, Anne D., 1819.
Petersen, Bruce H., 2159.
Phillips, R. Dixon, 765, 1441.
Pissaia, Odecio, 2035.
Placko, Robert P., 1070.
Poe, William E., 627, 1805, 2313.
Polan, Carl E., 2355.
Pond, Wilson G., 1255, 2506.
Potier de Courcy, G., 522.
Prentice, Neville, 388, 1014, 1473.
Prins, Hans W., 151.
Printen, Kenneth J., 1240.
Prior, Ronald L., 1904, 2011.
Pullkinen, Andrea, 2109.

Q

Qureshi, Asaf A., 388, 1014, 1473.

R

Radcliffe, John D., 2182.
Raffety, Clara J., 2374.
Raghuramulu, Namala, 28.
Ramesha, Chakkodabylu S., 2149.
Ramirez, Irma, 2207.
Rangel, Francisco, 1947.
Raque, George H. Jr., 2409.
Rasmussen, Kathleen M., 1940.
Ravi, R. T., 1144.
Raymond, Marvin L. 2065.
Reddy, Bandaru S., 1247, 1880.
Reeves, Philip G., 50.
Reichwald-Hacker, Irene, 1122.
Reinhardt, Timothy A., 1589.
Reynolds, Robert D., 1517.
Richard, Marlene J., 335.
Richie, Ellen, 2207.
Riesenfeld, G., 117.
Robbins, Kelly R., 907.
Robertson, J. A., 1130.
Robeson, Bonnie L., 2078.
Robinson, Edwin H., 627, 1805, 2313.
Robinson, James L., 816, 822.
Rodrigo, Adelaida, 595.
Roe, Daphne A., 1940.
Rogers, Kenneth S., 248.
Rogers, Quinton R., 1204, 2444.
Rogler, J. C., 130.
Rojanapo, Wannee, 178.
de Romaño, Guillermo Lopez, 1061, 1849.
Romsos, Dale R., 35.
Romsos, D. R., 2467.
Rosenfeld, Charles R., 2433.
Rosenthal, Ann L., 1629.
Rosselin, G., 1764.
Rossi, Marcos A., 2035.
Rosso, Pedro, 2350.
Rothenbacher, Hans, 1648.
Rothwell, Nancy J., 532.
Roux, Ch., 2310.
Roy, S. K., 1745.
Russell, Robert M., 558.

S

Sakamoto, Yukiya, 409.
Sakuma, Yuko, 383, 1347.
Sampugna, Joseph, 2490.
Sandstead, Harold H., 1858.
Sanford, C. Fogg, 22.
Saraux, Bertrand, 2302.
Sasser, Lyle B., 1641.
Savaiano, D. A., 1793.
Saylor, William D., 448, 460.
Savage, James E., 50.
Sbaschnig, Michele, 1880.
Schaafsma, G., 1101.
Schelenz, Rieder, 1774.
Schirardin, Françoise Chanussot, 686.
Schneeman, Barbara O., 584, 1992.
Schnitzer-Polokoff, Robin, 2396.
Scholfield, Daniel J., 1409.
Schotz, Michael C., 481.
Schuette, Sally A., 305.
Schwartz, Ruth, 851, 1365.
Scott, R. Allen, 2011.
Seitz, Hans J., 876.
Sell, Jerry L., 1894.
Seronde, Joseph, 200.
Sevall, J. Sanders, 105.
Shao, M. J. S., 859.
Shapira, John F., 1313.
Sharma, Chand, 1880.
Sharvit, Matitaho, 1930.
Sheinfil, Aron, 1247.
Sherman, Adria Rothman, 1648.
Shields, R. G. Jr., 1507.
Shin, Keun S., 778.
Shloss, Janet, 916, 2497.
Shrader, Ruth E., 543, 1432.
Sidransky, Herschel, 2231, 2514.
Simi, Barbara, 1880.
Simpson, R. C., 2467.
Singh, R. K., 1745.
Sitren, Harry S., 552.
Sjöblom, Linnea, 2321.
Skala, J. P., 330.
Sklan, D., 117, 139, 270, 989.
Slavin, Joanne L., 2020.
Slinger, S. J., 2527.
Sloan, Martin V., 897, 2414.
Sloger, Marcia S., 1517.
Smith, Cecil, 145.
Smith, Christine Hamilton, 1398.
Smith, Kenneth T., 316.
Snedeker, S. M., 2243.
Sowinski, Richard, 891.
Starcher, Barry C., 1391, 2095.
Stegink, Lewis D., 42, 1240, 2216.
Steingrimsdottir, Laufey, 600.
Steinke, Fred H., 829.
Stephan, Zouhair F., 2058.
Stevenson, Nancy R., 552.
Stock, Michael J., 532.
Stowe, Howard D., 1947.
Struthers, Barbara J., 2065.
Sturman, John A., 2058.
Sugano, Michihiro, 158, 360.
Sugarman, Barrett, 2297, 2317.
Sunde, Milton L., 388, 1014.
Suquet, Jean-Pierre, 649.
Swenerton, Helene, 575.
Szepesi, Bela, 2390.

T

Takahara, Hitoshi, 360.
Talbot, J. -N., 2310.
Tandler, Amos, 750.
Tani, Takeshi, 1686.
Tashiro, S., 1664.
Tateishi, Noriko, 409.
Tepperman, Helen M., 982.
Tepperman, Jay, 982.
Tews, Jean K., 394.
Thanassi, John W., 1965.

Thenen, Shirley W., 189, 373, 1338.
Tiedgen, Martin, 876.
Timmers, Kim, 1176.
Ting, Bill T. G., 2190.
Tinoco, J., 1497.
Titchenal, C. Alan, 2444.
Torre, Gregory M., 1194.
Tove, Samuel B., 2396.
Trider, Donald J., 1303.
Trmal, Thelma, 2291.
Tsai, S., 1023.
Tsan, Min-Fu, 954.
Tsubosaka, M., 1664.
Tulp, Orien L., 1421.
Turkewitz, Gerald, 231.
Tyobeka, Errol M., 241.
Tzeng, D. Y., 1161.

U

Ulman, Edward A., 1224, 1231.
Ulreich, Judith B., 1319.
Underwood, Barbara A., 1635.
Unsworth, E. F., 255.

V

Valberg, Leslie S., 1754.
Van Campen, Darrell R., 1618.
Van den Hamer, Cornelis J. A., 151.
Vander Tuig, Jerry G., 35.
Van Eys, Jan, 2207.
Vasilatos, Regina, 1479.
Verney, Ethel, 2231, 2514.
Visek, Willard J., 1224, 1231.
Visser, R., 1101.

W

Wallace, William C., 2113.
Wallingford, John C., 543.
Wang, Yeu-Ming, 2207.
Wangsness, Paul J., 1479, 1976, 1983.
Ware, Glenn O., 765, 2130.
Wasserman, Robert H., 1813, 2141.
Watanabe, K., 1247.
Watson, Ronald R., 771, 2159.
Weigand, Edgar, 469.
Weigand, Werner, 669.
Weir, W. C., 732.
Wekell, Marleen M., 1274, 2103.
Welch, Ross M., 1618.
Wentworth, R. A., 1365.
Weryha, André, 686.
Whiting, Susan J., 212.
Wien, E. M., 1365.
Wildenthal, Kern, 22.
Williams, M. A., 1497.
Wilson, Robert P., 627, 1805, 2313.
Winick, Myron, 416, 425.
Wolfe, Robert R., 1310.
Wolinsky, Ira, 2420.
Woo, D., 1958.
Wood, Nelson, 324.
Wostmann, Bernard S., 82.
Wozenski, Janet R., 275.

Y

Yaffe, Steven, 2490.
Yamashiro, Shigeto, 1197.
Yen, J. T., 2506.
Yeoman, M. M., 1130.
Yokogoshi, Hidehiko, 375, 383, 1327, 1347.
Yoshida, Akira, 375, 383, 513, 1327, 1347, 1686.
Young, Charles, R., 2254.
Young, John K., 703.
Young, Ruth A., 1421.
Young, Vernon R., 1458, 2190.
Younoszai, M. Kabir, 1622.
Yugari, Yasumi, 634, 641.

Z

Zartarian, Gary N., 1291, 1298.
Zeman, Frances J., 543, 1432.
Zemel, Michael B., 305.
Zile, M. H., 2225.
Zwemer, Raymond, 1925.

Subject Index, Volume 110

A

Acetate, effect of infusion of on lipogenesis in bovine adipose tissue, 2011.
Acetyl-CoA carboxylase, in chick liver, effect dietary cereal and *Trichoderma viride* culture filtrate on activity of, 1473.
N-Acetyl-L-methionine, utilization by humans compared to L-methionine, 42.
N-Acetylneuraminic acid, effect on brain glycoside and glycoprotein concentration, 416.
— —, effect of injection on behavior of malnourished rats, 416.
Adipocytes, effect of aging on accumulation of zinc by, 2317.
—, effect of size on lipogenesis, 1169.
—, from rats, accumulation of pantothenic acid by in vitro, 2297.
Adrenalectomy, dietary carbohydrate influence on metabolic response to, 298.
—, effect on lipemic tendencies of BHE rats, 298.
—, effect on sucrase activity of prematurely weaned rats, 169.
Age, of rats, effect on erythrocyte susceptibility to oxidative stress, 2460.
Aging, effect on accumulation of zinc by isolated rat adipocytes, 2317.
Alanine, effect on gluconeogenesis by rat hepatocytes in vitro, 2341.
Alkali-treated proteins, lysine availability, 907.
Amino acid imbalance, relationship to amino acid transport, 394.
— — mixture, adequate for superior growth in mice, 2409.
— — mixtures, dietary, effect of different types on plasma cholesterol in rabbits, 1676.
Amino acids, dietary, effects on liver and serum lipid concentrations, 1231.
— —, essential effect of deficiency on leucine incorporation by ribosomes, 241.
— —, ^{14}C-labeled, distribution of in tissues of obese and non-obese rats, 1865.
— —, in plasma and erythrocyte of normal adult humans and subjects heterozygous for phenylketonuria after an abuse dose of aspartame, 2216.
— —, minimal requirements by catfish, 627.
— —, plasma, effects of different varieties of corn in children, 1070.
Amylase, salivary, effect of protein malnutrition on, 771.
—, see pancreatic hydrolases, 1380.
Antioxidants, dietary, effect on development of vitamin E deficiency in chicks, 2045.
—, effect on mitogenesis in murine spleen cells, 2497.
Arginine, dietary, effect on orotate excretion, 1204.
—, effect of excess of on sodium accumulation in potassium-deficient rat muscle, 2480.
Aromatic amino acids, requirements by catfish, 1805.
Ascorbic acid, dietary, effect on cholesterol metabolism, 1488.
— —, effect on lymphocyte reaction to mitogens in vitro, 2207.
— —, high dietary levels, effect on catecholamine metabolism, 720.
— —, influence on blood histamine levels, 662.
— —, see vitamin C, 1398.
Aspartame, effect of administration of on plasma and erythrocyte free amino acid levels in normal adult humans and subjects heterozygous for phenylketonuria, 2216.
Aspirin, dietary, effect on vitamin E requirement of rats, 1958.

B

Bacteria, in gastrointestinal tract of guinea pigs, effect of diet on, 1543.
Beef, dietary, effect of method of preparation of on fecal bile acids and steroids and fecal bacterial enzymes in human studies, 1880.
—, iron availability, 567.
—, oxidized, 567.
Behavior, effects of early stimulation on in rats, 425.
—, effects of malnutrition on in rats, 425.
—, influence of injection of N-acetylneuraminic acid on, 416.
—, in offspring of rats subjected to zinc deficiency during lactation, 1858.
—, in pregnant rats, effect of dietary protein on, 1298.
—, relationship to brain, N-acetylneuraminic acid, 425.
Best, Charles Herbert (1899-1978), 17.
Bile acids and fiber, 594.
— —, fecal, effect of dietary fiber on excretion of cholesterol, plasma and liver levels, effect of source and amounts of dietary fiber on, 1247.
— —, intestinal, effect of dietary fat and pectin on, 1992.
— salts, adsorption by fiber from different varieties of carrots, 1130.
Blood pressure, rats, effect of dietary sucrose on, 725.
Body composition, of pregnant and lactating rats, effects of energy intake on, 1829.
— —, of rats, effect of quantity and quality of dietary protein on, 1441.
— —, use of deuterium oxide in prediction of, 1840.
Bone composition, effects of varying levels of dietary calcium and phosphorus on, 1161.
— formation, effect of silicon deficiency in chicks on, 1046.
— —, effect of zinc deficiency in guinea pigs on, 1581.
— resorption, influence of age, 778.
— —, influence of estrogen, 778.
— —, influence of phosphate, 778.
Bovine adipose tissue, effect of infusion of glucose, acetate, propionate and acetate on lipogenesis in, 2011.
Breast milk, human, fatty acid composition of 3 and 5 days *post partum*, 1671.
Brindled mice, copper metabolism in, 151.
Burns, effect of caloric intake on metabolic rate in burned, guinea pigs, 1310.

By-products, from animals, quality of protein from, 1319.

C

Cadmium, absorption and retention by newborn pigs, rats and guinea pigs, 1641.
— toxicity, in pigs, effect of dietary selenium on, 1255.
Calcitriol, effect on mobilization of bone calcium when injected into intact and thyroparathyroidectomized rats, 2291.
Calcium absorption, by duodenal loops from normal and rachitic chicks, effect of casein phosphopeptides on, 2141.
—, dietary, effect on metabolism of ^{14}C labeled phytate and myo-inositol, 1458.
—, —, dietary, effect on response to cholecalciferol in pregnant cows, 1589.
—, —, effect on survival in heat-stressed chicks, 837.
—, —, long-term effects of level on bond composition, 1161.
— excretion, effects of high-protein diets and dietary sulfur amino acids and sulfate on, 212.
— metabolism, effect of dietary protein on, 305.
— mobilization, effect of vitamin D metabolites on in intact and thyroparathyroidectomized rats, 2291.
— transport, in rat small intestine segments, effects of animal age on, 1622.
—, urinary excretion by pregnant rats, effect of dietary protein on, 2420.
Caloric restriction, effect on thymic factor activity and lymphocyte stimulation response to phytohemagglutinin, 1888.
Calves, effect of ration degradable nitrogen and physical form on ruminal metabolism, 2355.
Carbohydrate, dietary, effect of type of on intestinal secretion of lipoproteins by rats, 1354.
—, —, effects of type of on metabolizable energy in diets with various levels of fat, 1894.
—, —, effect on lipogenic enzymes in Zucker rats, 1409.
—, —, response of rats to, 1023.
—, —, sex differences in effect on insulin receptors, 2109.
— metabolism, developmental patterns of enzymes in rat tissues, 100.
Carcinosarcoma, in rats, effect on food intake, growth and body composition, 2182.
Cardiac lipidosis, relationship to strain, sex and diet in rats, 1006.
— output, in pregnant rats, effect of food restriction on, 2350.
Casein, digestion and absorption, 989.
— phosphopeptides, effect on calcium absorption from duodenal loops from normal and rachitic chicks, 2141.
Cassava, in rabbit diets, 697.
Catecholamines, cardiac levels of in rats, effects of protein-calorie malnutrition on, 2035.
—, effects of dietary ascorbic acid on, 720.
Catfish, aromatic amino acid requirements of, 1805.
—, lysine requirement of catfish, utilization of free amino acids by, 2313.
Cellulose, dietary, effect on digestibility of energy, fat and nitrogen in young women, 2020.
Cereal proteins, effect of supplemental bovine globin on quality of, 2254.
— grains, dietary, effects on lipid metabolism in chick livers, 1014.
Cereals, dietary, effects on lipid metabolism by chick livers, 388.
Cholecalciferol, absorption of by chicks and turkeys, 1930.
—, effect of injection on blood levels of 1,25-dihydroxycholecalciferol in pregnant cows fed varying levels of calcium and phosphorous, 1589.
—, effect on zinc absorption in chicks, 1813.
Cholesterol, biosynthesis in chick liver, effect of dietary cereal and *Trichoderma viride* culture filtrate on rate of, 1473.
— dehydrogenase, in fecal bacteria of human subjects, effect of diet on, 1880.
—, dietary, effect on guinea pig liver lysosomal enzymes, 1935.
—, —, effect on HMG-CoA reductase and sterogenesis, 158.
—, —, effect on mitochondrial function, 248.
—, effect of dietary vitamin A and ascorbic acid on synthesis of, 1488.
—, in rat serum, effect of dietary *trans* fatty acids on level of lecithin: cholesterol acyltransferase, in rat serum, effect of dietary *trans* fatty acids on activity of, 2284.
— levels, effect of dietary lactose, 82.
— metabolism, effect of copper deficiency on, 859.
—, mitochondrial, effect of diet on, 248.
—, plasma, effect of feeding different amino acid mixtures on in rabbits, 1676.
—, —, plasma levels in pigs, effect of type of dietary protein and degree of saturation of dietary fat on, 2467.
—, serum effect of dietary tryptophan deficiency on, 1194.
— 7 α-dehydroxylase, in fecal bacteria of human subjects, effect of diet on, 1880.
—, synthesis and excretion, effect of dietary polyunsaturated oils on, 2149.
Cholesterolemia, maternal, relationship to fetal malformations, 2310.
Cholestyramine, dietary effect on HMG-CoA reductase and sterogenesis, 158.
Chromatin, dietary, effects on composition of, 105.
—, in mammary glands of rats, effect of dietary protein on, 1144.
Chylomicrons, secretion by rat intestine, effect of dietary carbohydrate on, 1354.
Chymotrypsinogen, see pancreatic hydrolases, 1380.
Circadian variation, in levels of rat portal blood insulin, 1764.
— —, in pancreatic hydrolases, effect of dietary protein on, 1380.
Clostridium perfringens, in rat intestinal tract, effect of dietary xylitol on, 2103.
Coconut oil, dietary, effect on fatty acid composition of lymph, 2198.
Colipase, in rat pancreas, effect of various levels of dietary fat and protein on activity of, 2302.
Collagen, metabolism in chick bones, effect of zinc deficiency on, 2095.
Complement, effect of protein malnutrition on activity of in guinea pigs and rats, 2159.

Copper deficiency, effect on conversion of mevalonate to cholesterol, 859.
—, dietary, effect on sheep liver metallothionein, 460.
—, effect of dietary protein and phosphorous on utilization of by adult humans, 2243.
—, intracellular distribution in sheep liver, 448.
—, levels in guinea pig tissues, effect of varying levels of dietary vitamin C on, 1398.
—thionein, impaired synthesis in mutated brindled mice, 151.
— utilization, relationship to metallothionein synthesis, 151.
Corn, different varieties, effects on plasma amino acids in children, 1070.
— oil, dietary, effect on lipid metabolism in rat liver, 1138.
Cyclic nucleotides, effect of diet on hepatic concentration of, 330.
— —, effect of premature weaning on concentration of, 330.
Cystine, dietary supplementation of sulfur amino acid-deficient diets, role of source of dietary protein on effectiveness of, 1736.

D

Dark adaptation, serum vitamin A, 558.
Degradable nitrogen, in calves' rations, effect on ruminal acetate and propionate transport, ruminal wall enzymes on rumen papellea morphology, 2355.
Dehydroascorbic acid, effect on lymphocyte reaction to mitogens in vitro, 2207.
Dental caries, effects of dietary zinc on, 1032.
Deuterium oxide, use in predicting total body water and body composition of pregnant and lactating rats, 1840.
Diacylglycerol acyltransferase, in liver, effect of dietary corn oil on, 1138.
Diarrhea, in rats, fed sorbitol, relationship to concentration of *Clostridium perfringens* in intestinal tract, 2103.
Dietary restriction during various stages of gestation, effects on maternal and fetal weight gain, 883.
Dietary restriction, effect on fatty acid desaturases, 595.
Digestibility of energy fat and nitrogen by young women, effect of dietary cellulose on, 2020.
Digestive enzymes, in sows and progeny, effect of dietary protein on, 1507.
1,25-Dihydroxycholecalciferol, blood levels in pregnant cows, effects of injection of cholecalciferol on, 1589.
—, effect on zinc absorption by diet in chicks, 1813.
Dilauryl succinate, dietary, effect on development of vitamin E deficiency in chicks, 2045.
— —, effects of metabolites of on hemolysis and mitochrondrial lysis in chicks, 2051.
Diurnal variation, in amino acid catabolism, 974.
DNA, dietary effects on digestion of by micrococcal nuclease, 105.
— synthesis, in catch-up growth in previously malnourished suckling rats, 2336.
Doft, Floyd Sheldon. A biographical sketch, 1925.
Drug metabolizing enzymes, in polychlorinated biphenyl-fed rats, effect of level of dietary protein on, 1686.

E

Encephalomyelitis, effect of fatty acid deficiency on, 891.
Energetic efficiency, of mice from various lines, relationship to plasma thyroid hormone levels, 1262.
Energy, dietary, effect on nitrogen sparing action of methionine and arginine, 59.
— intake, effect on body composition of pregnant and lactating rats, 1829.
—, metabolizable, relationship to dietary fat and carbohydrate, 1894.
— requirements for maintenance, obese (ob/ob) mice versus lean mice, 35.
Epoxyretinoic acid, biological activity in vitamin A-deficient rats, 2225.
Erythrocytes, susceptibility to oxidative stress, effect of age and dietary selenium on in rats, 2460.
Essential fatty acids, deficiency, effect of dietary protetin on, 1057.
— — —, metabolism in rainbow trout, 675.
Estrogen receptors, in rat uterus, effect of dietary protein on, 1745.
Ethanol drinking, effects of thiamin deficiency, blood acetaldehyde, noradrenaline, dopamine on, 937.
Ethenothiamin, thiamin activity in the rat, 2117.
Ethoxyquin, effects on signs of vitamin D deficiency, 1372.

F

Fasting, effect on uterine and placental blood flow and uterine metabolism in pregnant ewes, 2433.
Fat, dietary, effect of degree of saturated on plasma cholesterol levels in pigs, 2467.
—, —, effect of quantity and type on bioavailability of iron in turkey meat, 1703.
—, —, effect of type of on cholesterol concentration of calf tissues, 335.
—, —, effect on activity of pancreatic enzymes in rats, 2302.
—, —, effect on carcass fat in pregnant and lactating rats, 600.
—, —, effect on fat cell size in pregnant and lactating rats, 600.
—, —, effect on fecal bile acids and steroids and fecal bacterial enzymes in human subjects, 1880.
—, —, effect on guinea pig lysosomal enzymes, 1935.
—, —, effect on HMG-CoA reductase and sterogenesis, 158.
—, —, effect on immune responsiveness of mice, 1555.
—, —, effect on metabolizable energy of diets containing various carbohydrates, fed to laying hens, 1894.
—, —, effect on pancreatic enzymes and intestinal bile acids, 1992.
—, —, type of, effect on lipogenesis in chick liver, 1533.
Fatty acid deficiency, effect on allergic encephalomyelitis, 891.
— — synthetase, in chick liver, effect of dietary cereal and *Trichoderma viride* culture filtrate on activity of, 1473.
— — synthesis, rate related to enzyme activities in livers from fetal, suckling, weanling and maternal rats, 90.

Fatty acids, dietary, effect of *trans* isomers on rat serum lecithin:cholesterol acyltransferase and cholesterol levels, 2284.
— —, dietary, medium and long chain incorporation into tissues of obese and lean rats, 686.
— —, essential, requirement for by the mosquito, 1152.
— —, in human colostrum, 1671.
— —, in lymph, effect of intraduodenal infusion of various fatty acids and dietary coconut oil on composition of, 2198.
— —, plasma, effect of starvation on, 2490.
— —, plasma, effects of dietary fats on, 1006.
— —, polyunsaturated, related to zinc in the chick, 50.
— —, protein-complexed, uptake by chick duodenal loops, 270.
— —, requirements by oysters, 1303.
— —, unsaturated, effect on development of vitamin E deficiency in chicks, 2045.
Fatty liver, in rats, effects of dietary amino acids on, 1231.
— —, orotic acid induced, species specificity in, 822.
— —, in rats, effects of dietary protein and lysine on, 1224.
— —, methionine and, 505.
Fecal bacterial enzymes, effect of high-fat, high-beef diet on in human subjects, 1880.
— composition, effect of high-fat, high-beef diet on in human subjects, 1880.
Feeding frequency, effect on growth and body composition of gastrostomized rat pups, 2374.
Fetal development, in rats, effects of maternal vitamin D deficiency on, 1573.
— weight gain, effect of dietary restriction of dam during gestation on, 883.
Fiber, bile acids, 584.
—, dietary, effect of source and amount on fecal bile acids and neutral sterol excretion and plasma and liver cholesterol, 1247.
—, —, effect on pancreatic enzymes and intestinal bile acids, 1992.
—, —, effects of various types of metabolism of chicks, 1112.
—, —, effects on mineral absorption in growing rats, 1774.
—, —, from different varieties of carrot, effects on adsorption of bile salts, 1130.
—, digestion, 584.
—, in rat diets, effect on diarrhea, 513.
—, in rat diets, effect on intestinal enzymes, 513.
—, in rat diets, effect on toxicity of added chemicals, 513.
—, pancreatic enzymes, 584.
Fish, amino acid requirements of, 627.
—, anemia and leukocytosis resulting from vitamin C deficiency in, 2172.
Folic acid, in pregnant rats, 522.
Food restriction, in rats at day 21 of gestation, effect on cardiac output and blood flow to uterus, ovary and placenta, 2350.
Fructose, dietary, effect on serum triglyceride levels, 982.

G

Garlic, effect on carbohydrate metabolism, effect on lipid synthesis, 931.
Gastrostomy, in rat pups, effect of feeding frequency on growth and body composition, 2374.
Gerbils, effects of myo-inositol deficiency on, 1209, 1217.
Gestational hyperinsulinemia, effect on malate dehydrogenase, 610.
— —, effect on glucose-6-phosphate dehydrogenase, 610.
— —, effect on pyruvate kinase, 610.
Globin, bovine, effects of dietary supplementation on protein quality of cereal-based diets, 2254.
Glucagon, in rat portal blood effect of dietary protein on level of, 1764.
Glucocorticoid, effect on enzyme response to starvation-refeeding in rats, 286.
—, effect on glucose-6-phosphate dehydrogenase, 286.
—, effect on lipogenesis, 286.
—, effect on malic enzyme, 286.
Gluconeogenesis, by rat hepatocytes, effect of alanine in vitro, 2341.
Glucose, absorption along chick's intestine, 117.
—, effect of infusion of on lipogenesis in bovine adipose tissue, 2011.
— metabolism by rat adipose tissue, effects of caloric restriction and refeeding on, 1176.
— — in lambs, effect of hay and high concentrate diet, 1904.
—-6-phosphate dehydrogenase, induction by high glucose diet, effect of thyroxine injection on in rats, 2390.
—-6-phosphate dehydrogenase, in liver, effect of dietary corn oil on, 1138.
β-Glucuronidase, in fecal bacteria of human subjects, effect of diet on, 1880.
Glutathione levels, changes in mouse liver during gestation, 409.
— metabolism, changes in fetal mouse liver during gestation, 409.
γ-Glutomytransferase, changes in fetal mouse during gestation, 409.
Glycerolipids, structure of in rats fed unhydrogenated and hydrogenated soybean oil, 1122.
α-Glycerophosphate acyltransferase in liver, effect of dietary corn oil on, 1138.
Glycoproteins, hepatic, changes in rats fed low-protein diet, 324.
Glycosaminoglycan, in guinea pig bone, effect of zinc deficiency on metabolism of, 1581.
Goblet cells, rat intestine, effect of vitamin A deficiency on, 178.
Growth, catch-up after malnutrition in suckling rats, DNA metabolism in, 2336.
— hormone, effect on vitamin A, release and uptake by rat tissues, 1185.
— —, in plasma of lactating dairy cows, effects of feeding on, 1479.

H

Heart, of rats, effects of protein-calorie malnutrition on, 2035.
— ventricular lipids, effect of starvation on composition of, 2490.
Heat exposure, by chicks, effect of phosphorus nutrition on response to, 784.
— stress, in chicks, effects of dietary calcium and phosphorus on survival, 837.

— treatment, of cottonseed meal, effect on ruminal protein degradation and escape of in vitro, 2381.
Hepatic cyclic AMP, circadian variation, 876.
Hepatocytes, rat, control of ketogenesis in, 2365.
—, rat, effect of alanine on gluconeogenesis by in vitro, 2341.
Histamine, blood levels, effect of ascorbic acid on, 662.
HMG-CoA reductase, effect of diet on, 158.
— —, in chick liver, effect of dietary cereal and *Trichoderma viride* culture filtrate on activity of, 1473.
Hydrogenation of dietary lipids, effect of structure of tissue glycerolipids, 1122.
25-Hydroxycholecalciferol, absorption of by chicks and turkeys, 1930.
Hypothyroidism, in pregnant rats, effect on carbohydrate metabolism of progeny, 1432.

I

Immune response, effect of malnutrition on in guinea pigs and rats, 2159.
— —, of mice, effect of dietary fat on, 1555.
Immunity, cell-mediated, effect of caloric restriction in rats on, 1888.
Immunocompetence, in iron-deficient rats, 1648.
Infants, human, protein requirements of, 1727.
Insulin, effect on feed intake and blood glucose of sheep, 1976, 1983.
—, in plasma of lactating dairy cows, effects of feeding on, 1479.
—, in rat portal blood, effect of dietary protein on level of, 1764.
— receptors, sex differences in effect of dietary carbohydrate on, 2109.
Intestinal microecology, of guinea pigs, effect of diet on, 1543.
Intestine, of rat pups, molecular localization of zinc in, 2414.
Intravenous feeding, circadian rhythms, 552.
— —, liver parameters, 552.
— —, rats, amino acid infusion, 710.
Iodine toxicity, in rats, effect of dietary vitamin A on, 1947.
Iron absorption, by rats, effect of oralates on, 1618.
— —, use of stable iron isotope for determination of, 2190.
—, availability, 567.
—, bioavailability, effect of phytate on, 2000.
—, —, from turkey meat, effect of dietary fat on, 1703.
— deficiency, effect on absorption of various metals, 1754.
— —, in rats, target organ pathology in, 1648.
—, dietary, effect on lead toxicity in pregnant and lactating rats and their progeny, 1453.
—, effect on suppression of *Escherichia coli* by sow's milk, 1915.
—, in spinach, bioavailability to rats, 1618.
— metabolism, nickel interactions, 965.
—, tissue concentrations in guinea pigs, effect of varying levels of dietary vitamin C on, 1398.

K

α-Keto acids, branched chain, dietary, effects on α-keto dehydrogenase and branched chain amino acid transaminase in rat brain, kidney and liver, and plasma ammonia and plasma and urinary urea, 1709.
Ketogenesis, in isolated rat hepatocytes, control by mitochondrial oxaloacetate and competitive oxidation, 2365.
Kidney, perfused, metabolism of pyridoxine and pyridoxal by, 1597.
Kittens, effects of threonine deficiency and imbalance on, 2444.

L

Lactate, effect of infusion of on lipogenesis in bovine adipose tissue, 2011.
—, metabolism in lambs, effect of hay and high concentrate diet, 1904.
Lactation, in rats, vitamin B-6 metabolism in, 1517.
Lactose, dietary, effect on tissue cholesterol levels, 82.
Lambs, glucose and lactate metabolism in effect of hay and high concentrate diet on, 1904.
Lanthionine, nutritional value for chicks, 907.
Lauryl alcohol, effect on hemolysis and mitochondrial lysis in chicks, 2051.
Lead, toxicity in pregnant and lactating rats and their progeny, effect of dietary iron on, 1453.
Letters to the editor, 200, 371, 1922, 2130, 2536.
Linoleate, dietary, effect on prostaglandin synthesis in rat blood in vitro, 1695.
Linoleatic acid, dietary protection against pneumonitis produced by dietary palmitoyl glycerol in mice, 2396.
Linolenic acid, dietary deficiency, effect on plasma and liver lipids of rats, 1497.
Linustatin, effect of feeding on selenium toxicity, 145.
Lipase, in rat pancreas, effect of various levels of dietary protein and fat on activity of, 2302.
Lipectomy, effect on food efficiency of rats, 1785.
—, rate of fat compensation following, 1785.
Lipid metabolism, effects of dietary cereals and *Trichoderma viride* culture in chick livers on, 1014.
— —, enzymes, effects of dietary cereals on, 388.
— peroxidation, effect of dietary corn oil on, 924.
— —, effect of dietary olive oil on, 924.
— —, effect of tocopherol on, 924.
Lipids, dietary, effect on liver enzymes of calves, 255.
—, effect of type of dietary protein on metabolism of, 732.
—, in liver, effect of aging process on, 669.
—, in liver, effect of high-protein or high-carbohydrate diet on, 669.
—, in plasma and liver of rats, effect of linolenic acid deficiency on, 1497.
—, liver and serum, effects of dietary casein and lysine on concentrations of, 1224.
—, liver, effects of dietary amino acids on, 1231.
—, serum, effect of source of dietary protein on, 2321.
Lipogenesis, by pig adipocytes, 1169.
— in bovine adipose tissue, effects of infusions of glucose lactate acetate and propionate on, 2011.
—, in chick liver, effect of type of dietary fat on, 1533.
—, in rat adipose tissue, effects of caloric restriction and refeeding on, 1176.
Lipogenic enzymes, in rat livers, effect of dietary shellfish triglycerides on, 1664.
Lipoprotein lipase, in rat heart, carbohydrates and, 481.

Lipoproteins, effects of dietary sucrose and starch on secretion of by rat intestine, 1354.
—, in rat serum, effect of source of dietary protein on, 2321.
Liver, effects of copper and zinc intake on their intracellular distribution in, 448.
Lymph, fatty acid composition of, effect of intraduodenal infusion of various fatty acids and dietary hydrogenated coconut oil on, 2198.
Lymphocytes, effect of caloric restriction on stimulation response of to phytohemagglutinin in rats, 1888.
—, reactivity to mitogens, effect of ascorbic acid and dehydroascorbic acid on in vitro, 2207.
Lysine, dietary, effects on serum and liver lipid concentrations, 1224.
—, effect of excess of on sodium accumulation in potassium-deficient rat muscle, 2480.
— requirement, of catfish, 2313.
Lysinoalanine, nutritional valuc for chicks and rats, 907.
—, tissue distribution and excretion in rats, 2065.
Lysosomal enzymes, effect of vitamin C deficiency in guinea pigs on, 2085.
— —, in guinea pig livers, effect of dietary lipid on, 1935.
Lysosome, stabilization by zinc, 945.

M

Magnesium absorption, from different vegetables, 1365.
— —, measured by ^{28}Mg, 1365.
— bioavailability, 829.
— —, effect of dietary protein on, 829.
— deficiency, effect of calcium mobilization and urinary cAMP excretion calcium, dietary deficiency, relationships to dietary magnesium in stimulation of parathyroid hormone and cAMP, 1610.
— —, effect on parathyroid hormone activity in rats, 1610.
— —, effects on intestinal mucosa and cell histamine in rats, 851.
— —, in rats, effects on, serum and muscle, taurine concentration and muscle ultrastructure, 2078.
Malic enzyme, induction by high glucose diet, effect of thyroxine injection on in rats, 2390.
— —, in liver, effect of dietary corn oil on, 1138.
Malnutrition, in lactating rats, effect on behavior of offspring, 1858.
Manganese deficiency, effect on superoxide dismutase activity, 437.
— —, effect on superoxide dismutase in chickens, mice, rats, 795.
—, effect of dietary protein and phosphorus on utilization of by adult human males, 2243.
Maternal weight gain, effect of dietary restriction on, 883.
Mathematical models, intake-response relationships in higher organisms, 765.
Metabolic rate, in burned guinea pigs, effect of caloric intake on, 1310.
Metallothionein, in sheep liver, cytosol, effect of dietary copper and zinc on, 460.
—, intestinal, regulation of zinc absorption by, 1391.
Methionine, dietary, effect on incidence and severity of vegetable oil-induced myocardial lesions in rats, 1197.
—, fatty livers, 505.
—, phospholipid, 505.
— synthesis, folic acid levels, 522.
—, toxicity of various isomers, 959.
—, utilization of D- and L-isomers by monkeys, 1240.
—, utilization of various isomers, 959.
Methylmelonate, urinary excretion in vitamin B-12-deficient rats, 1338.
Microsomal 3-hydroxy-3-methylglutaryl coenzyme A reductase, in rat small intestine, effect of diet on, 360.
Milk, rat, molecular localization of zinc in, 2414.
Mineral absorption, effect of dietary fiber on, 1774.
Mitogenesis, effect of dietary vitamin E and fat on, 916.
Mitogenesis, in murine spleen cells, effect of tocopherol analogs and synthetic antioxidants on, 2497.
Mitogenic response, by human lymphocytes, effect of ascorbic acid and dehydroascorbic acid on in vitro, 2207.
Minerals, dietary, effects on chick response to *S. gallinarum* inoculation, 433.
Monkeys, relative utilization of D- and L-methionine, 1240.
—, requirement for dietary taurine, 2058.
—, zinc deficiency, 575.
Monolauryl succinate, effect on hemolysis and mitochondrial lysis in chicks, 2051.
Mosquito, requirement of fatty acids by, 1152.
Muscle cellularity in Zucker obese rats, 1313.
Muscular dystrophy, induced by magnesium deficiency in rats, 2078.
Myocardial lesions, in rats, effect of dietary methionine on, 1197.
Myo-inositol, ^{14}C labeled, effect of dietary calcium on metabolism of, 1458.
— deficiency, effect on composition of liver triglycerides, 496.
— —, effect on hepatic triglycerides, 488.
— —, effect on lipid metabolism in gerbils, 1209.
— —, effects on lipid metabolism in gerbils, 1217.

N

Neolinustatin, effect of feeding on selenium toxicity, 145.
Neurologic dysfunction, in kittens, resulting from threonine deficiency and imbalance, 2444.
Nitrogen sparing effect of methionine and arginine, effect of dietary energy, 59.
Nitrous oxide, effects of exposure to on vitamin B-12-deficient rats, 223.
Nucleotides, hepatic, effects of dietary orotic acid on, 816.
Nutritional level, early, effects on adult mice, 649.
— rehabilitation, in previously malnourished suckling rats, DNA metabolism in, 2336.

O

Obese pigs, response to dietary protein deficiency, 2506.
— rats, body distribution of injected ^{14}C amino acids, 1865.
— —, Zucker, bone growth and muscle cellularity in, 1313.
Obesity, in rats, effects of early undernutrition on development of, 2027.

—, in Zucker rats, thermogenesis in as related to diet, 1421.
Octanoate, induction of ketogenesis in isolated rat liver hepatocytes by, 2365.
Oleate, induction of ketogenesis in isolated rat hepatocytes by, 2365.
Oleic acid, dietary, protection against pneumonitis produced by palmitoyl glycerol in mice, 2396.
Opaque-2 corn, nutritional value of in children, 1061.
Orotate excretion, effect of dietary arginine on, 1204.
Orotic acid, dietary, fatty liver response by various species, 822.
— —, effects on hepatic lipid and nucleotide metabolism, 816.
Oysters, requirements for fatty acids, 1303.
Oxalate, effect on iron absorption by rats, 1618.
Oxidative stress, in rat erythrocytes, effect of age and dietary selenium on, 2460.

P

Palmitoyl glycerol, dietary, production of pulmonary lesions in mice and its prevention by dietary linoleate and oleate, 2396.
Pancreatic enzymes and fiber, 584.
— —, effect of dietary fat and pectin on, 1991.
— —, effects of various levels of dietary fat and protein on activity of, 2302.
— hydrolases, circadian variation in, effect of dietary protein on, 1380.
Pantothenic acid, accumulation by isolated rat adipocytes in vitro, 2297.
Parturient paresis, in cows, mechanism of preventative effects of cholecalciferol injections on, 1589.
Pectin, dietary, effect on pancreatic enzymes and intestinal bile acids, 1992.
Phenylalanine, deficiency, effect on thyroid hormone concentration, 130.
—, requirement by catfish, 1805.
Phenylketonuria, subjects heterozygous for, plasma and erythrocyte free amino acid levels following aspartame administration, 2216.
Phospholipid, methionine and, 505.
Phosphorus, dietary, effect on response to cholecalciferol in pregnant cows, 1589.
—, —, effect on survival in heat stress in chicks, 837.
—, —, effect on utilization of zinc, copper and manganese by adult human males, 2243.
—, —, long-term effects of level on bone composition, 1161.
—, high levels, on Ca metabolism, effects of lactose, 1101.
—, nutritional status, effects on response of chicks to high temperatures, 784.
—, urinary excretion by pregnant rats, effect of dietary protein on, 2420.
Phytate, ^{14}C labeled, effect of dietary calcium on metabolism of, 1458.
—, effect on bioavailability of iron and zinc, 2000.
Picolinic acid, effect on zinc absorption, 1076.
Placenta, effect of dietary protein on, 122.
—, in pregnant ewes, effect of fasting on blood flow in, 2433.
Placental blood flow, in pregnant ewes, effect of fasting on, 2433.
— — —, in rats, effect of food restriction on, 2350.
Platelet, effect of zinc deficiency on aggregation of, 2125.
Pneumonitis, produced by dietary palmitoyl glycerol in mice and its prevention by dietary linoleate and oleate, 2396.
Polychlorinated biphenyls, dietary, effect on liver drug metabolizing enzymes in rats fed different levels of protein, 1686.
Polyethyleneglycol, effect on diarrhea, 513.
Polysaccharides, indigestible, dietary, effects on mineral absorption, 1774.
Polysome profile, hepatic, effect of dietary essential amino acids on, 375.
Polysomes, hepatic, effect of quantity and quality of dietary protein on, 1347.
— —, effects of dietary protein on, 383.
Polyunsaturated oils, in diets, mechanism of hypocholesterolemic effect, 2149.
Potassium deficiency, in rats, effects of lysine and arginine on muscle sodium accumulation in, 2480.
Potato, digestibility and quality of protein for human infants, 1849.
Pregnancy, in rats, effect on response of urinary calcium and phosphorus to dietary protein, 2420.
—, in rats, effects of dietary protein on body composition, 1291.
—, in rats, vitamin B-6 metabolism in, 1517.
—, metabolic response to, 610.
Prolyl hydroxylase, tissue levels in scorbutic guinea pigs, 1525.
Propionate, effect of infusion of, on lipogenesis in bovine adipose tissue, 2011.
Propylthiouracil, in diet of pregnant rats, effects on carbohydrate metabolism of progeny, 1432.
Prostaglandin cyclooxygenase, effect of dietary vitamin E on activity of, 66.
Prostaglandins, effect of dietary essential fatty acids on synthesis of, 1695.
Protein and energy levels, effects on growth of rats, 618.
—calorie malnutrition, in rats, effects on the heart, 2035.
—calorie malnutrition neurogenesis, 543.
— deficiency, alloxan effects on diabetes, 703.
— —, effect on calcium transport, 28.
— —, effect on estrogen receptors in the rat uterus, 1745.
— —, effect on metabolism of 1, 25-dihydroxycholecalciferol, 28.
— —, in lean and genetically obese pigs, effect on growth, hemoglobin, serum protein and transferrin, 2506.
— —, in pregnant rats, effect on maternal body composition and fetal weight, 1291.
—, dietary, effect of level of on behavior of pregnant rats, 1298.
—, —, effect of level of on urinary calcium and phosphorus and bone calcium loss in pregnant rats, 2420.
—, —, effect of quality of on urea synthesis in rats, 1327.
—, —, effect of quantity and quality on hepatic polysomes, 1347.
—, —, effect of source of on effectiveness of cystine supplementation in sulfur amino acid-deficient diets, 1736.
—, —, effect of source of on lipid metabolism, 732.
—, —, effect of source of on plasma cholesterol levels in pigs, 2467.

—, —, effect of type of on body composition of rats, 1441.
—, —, effect on activity of pancreatic enzymes in rats, 2302.
—, —, effect on body composition of pregnant rats, 1291.
—, —, effect on digestive enzymes of sows and progeny, 1507.
—, —, effect on essential fatty acid deficiency symptoms, 1057.
—, —, effect on insulin and glucagon levels in portal blood, 1764.
—, —, effect on mammary gland chromatin, 1144.
—, —, effect on placental protein, RNA, free amino acids and enzymes, 122.
—, —, effect on serum lipids and bone mineral content, 2321.
—, —, effect on utilization of zinc, copper and manganese by adult human males, 2243.
—, —, effects on liver and serum lipids, 1224.
—, —, in pregnant rats, effect on carbohydrate metabolism of progeny, 1432.
—, —, level, effect on liver microsomal drug metabolizing enzymes, lipids and urinary ascorbic acid in rats fed polychlorinated biphenyls, 1686.
— digestion, in chicks and turkeys fed casein or soybean meal, 139.
—, from animal by-products, chemical characterization and quality as assayed with *Tetrahymena pyriformis*, 1319.
— intake of pigs, effect on energy balance, 532.
— — of pigs, effect on enzymes and hormones, 532.
— malnutrition, effect on salivary proteins of rats, 771.
— —, effects on complement activity in guinea pigs and rats, 2159.
— quality, effect of on development of vitamin deficiency in rats, 1635.
— —, effect on growth, food intake, tumor growth and composition of Walker 256 carcinosarcoma-bearing rats, 2182.
— —, of wheat and corn gluten with and without supplemental bovine globin, 2254.
— requirements, of human infants 9–17 months of age, 1727.
— synthesis, by rat liver in vitro, effect of threonine deficiency on, 2514.
— —, effect of administration of tryptophan and tryptophan-related compounds on rats on, 2231.
—, white potato, digestibility and quality of for human infants, 1849.
Purines, radioactive, recovery in urine and various tissues of rats when administered orally and intravenously, 1793.
Pyridoxal-5-phosphate, tissue concentration in pregnant and lactating rats fed various levels of vitamin B-6, 1517.
— kinase, in rat liver and brain, effect of vitamin B-6 deficiency on pyridoxine phosphate phosphatase, in rat liver and brain, effect of vitamin B-6 deficiency on, 1965.
— phosphate, in rat plasma liver and brain, effect of vitamin B-6 deficiency on, 1965.
Pyridoxamine 5′ phosphate oxidase, in rat liver and kidney, effect of strain and riboflavin deficiency on, 1940.
Pyridoxine, metabolism of in perfused rat kidney, 1597.
— phosphate oxidase, in rat liver and brain, effect of vitamin B-6 deficiency on, 1965.
—, transport and metabolism in vascularly perfused rat small intestine and hind limb, 1655.
Pyruvate kinase, in rat hepatocytes, effect of alanine on in vitro, 2341.

R

Ration, for calves, effect of degradable nitrogen and physical form on rumen metabolism and papillae morphology, 2355.
Riboflavin analogs, effect on growth of *Tetrahymena pyriformis*, 2113.
— deficiency, effect on pyridoxamine 5′-phosphate oxidase activity in rat liver and kidney, 1940.
Ribosomes, hepatic, effect of administration of tryptophan and tryptophan-related compounds of activity of, 2231.
RNA metabolism, in rat liver, effect of threonine deficiency on, 2514.
Rumen, of calves, effect of ration degradable nitrogen and physical form on metabolism in and morphology of papillae, 2355.
—, protein degradation and escape in in vitro, effect of heat treatment of cottonseed meal on, 2381.
Rumination, effect on liver enzymes, 255.

S

Saliva, proteins, effect of protein malnutrition on, 771.
Selenium, availability assay, 1089.
—, availability in fish meal, 1096.
—, dietary, effect on appetite in chicks, 743.
—, —, effect on cadmium toxicity in pigs, 1255.
—, —, effect on erythrocyte susceptibility to oxidative stress, 2460.
—, requirement by rainbow trout, 2527.
— toxicity, effect of linustatin and neolinustatin feeding on, 145.
—, — of for rainbow trout, 2527.
Sheep, intracellular distribution of copper and zinc in liver, 448.
—, pregnant ewes, effect of fasting on uterine and placental blood flow and uterine metabolism in, 2433.
Shellfish triglycerides, effect on cholesterol synthesis by rat livers, 1664.
Silicon, dietary deficiency, effect on long bones of chicks, 1046.
—, —, effect on skull formation in chicks, 352.
β-Sitosterol, dietary effect on HMG-CoA reductase and sterogenesis, 158.
Sodium, accumulation in potassium-deficient rat muscle, effect of excess lysine and arginine on, 2480.
Somatomedin, relationship to vitamin A, 868.
Specific dynamic action, effect of diet on in bass, 750.
Starch, dietary, effect of chemical modification on availability of, 1023.
—, digestion along chick's intestine, 117.
Starvation, effects on cardiac proteolytic capacity, 22.
—, in rats, effect on plasma fatty acid levels and heart lipid composition, 2490.
Sterogenesis, effect of diet on, 158.
Stimulation of young rats, behavior, 425.
— — — —, brain NANA, 425.
Sucrase activity, effect of adrenalectomy on, 169.
— —, effect of premature weaning and starvation on, 169.

Sucrose, dietary, effect on blood pressure of rats, 725.
Sugary-2 corn, nutritional value of in children, 1061.
Sulfate, effect on calcium excretion, 212.
Superoxide dismutase, effect of manganese deficiency on, 437.

T

Taurine, dietary requirement for by cebus and cynomolgus monkeys, 2058.
—, effect of magnesium deficiency on concentration of in rat serum and muscle, 2078.
Teratogenic, relationship to maternal blood cholesterol level, 2310.
Tetrahymena pyriformis, effect of riboflavin analogs on growth of, 2113.
Thermogenesis, effect of diet on in obese and lean rats, 1421.
Thiamin, replacement by ethenothiamin in the diet of rats, 2117.
Threonine deficiency, effect on RNA metabolism and protein synthesis in rat liver, 2514.
— —, neurologic dysfunction in kittens, 2444.
— imbalance, in kittens, neurologic dysfunction in, 2444.
—, tissue levels, effects of dietary dispensable amino acids on, 394.
Thymic factor, effect of caloric restriction on activity of in rats, 1888.
Thyroid function, in obese and lean rats, effect of diet on, 1421.
— hormone, concentrations, effect of aromatic amino acid deficiency on, 130.
— —, effect on the development of obesity and response to cold stress in genetically obese mice, 189.
— hormones, plasma levels in mice of various strains, 1262.
Thyroparathyroidectomy, in rats, effect on bone calcium metabolization in response to vitamin D metabolites, 2291.
Thyroxine, effect of injection of on induction of glucose-6-phosphate dehydrogenase and malic enzyme by high glucose diets in rats, 2390.
Tocopherol analogs, effect on mitogenesis in murine spleen cells, 2497.
Tocopherol, effect on lipid peroxidation, 924.
α-Tocopherol, effect on mitogenesis in murine spleen cells, 2497.
Trace minerals in rat milk, effect of chelates, 897.
Transport, of acetate and propionate across calves' ruminal wall, effect of ration degradable nitrogen and physical form on, 2355.
Trichoderma viride, culture filtrate, effect on lipid metabolism in chick livers, 1473.
— — — medium, dietary, effects on lipid metabolism in chick livers, 1014.
Triglyceride synthesis, by liver slices, effect of dietary corn oil on, 1138.
Triglycerides, hepatic, effects of myo-inositol deficiency on, 496.
—, in rat serum, effect of source of dietary protein on, 2321.
—, serum, effects of dietary fructose on, 982.
—, —, effect of dietary tryptophan deficiency on, 1194.
Trout, requirement and toxicity of selenium for, 2527.
Trypsinogen, see pancreatic hydrolases, 1380.
D-Tryptophan metabolism in rats and chicks, 641.
Tryptophan and related compounds, effect of administration of on hepatic polyribosomes and protein synthesis on, 2231.
—, deficiency, effects on serum lipids, 1194.
—, utilizatic in rats and chicks, 634.
Tyrosine, deficiency, effect on thyroid hormone concentration, 130.
—, replacement value for phenylalanine in catfish, 1805.

U

Urea synthesis, effect of dietary protein quality on, 1327.
Uterine blood flow, in pregnant ewes, effect of fasting on, 2433.
— — —, in pregnant rats, effect of food restriction on, 2350.
— fluid, zinc concentration in zinc-deficient rats, 591.
Uterus, in pregnant ewes, effect of fasting on blood flow and metabolism in, 2433.

V

Visual discrimination in rats, effects of malnutrition on, 231.
Vitamin A deficiency, biological activity of 5,6-epoxyretinoic acid in, 2225.
— — —, dark adaptation, 558.
— — —, effect of quality of dietary protein on development of, 1635.
— — —, effect on sulfation, 868.
— —, dietary, effect of cholesterol metabolism, 1488.
— —, —, effects of forms of on serum and liver lipids, 343.
— —, effect of deficiency on goblet cells of rats small intestine, 178.
— —, effect of growth hormone on metabolism of, 1185.
— —, effect on iodine toxicity in rats, 1947.
— —, effect on tumor growth carcinoma, in rats, effect of dietary vitamin A on growth of, 1629.
— —, relationship to somatomedin, 868.
— —, relative dose response in vitamin A-deficient rats fed rice protein or casein, 1635.
Vitamin B-6, bioavailability in various types of bread, 1819.
— — deficiency, effect on tissue pyridoxal phosphate, pyridoxal kinase, pyridoxine phosphate phosphatase and pyridoxine phosphate oxidase in rats, 1965.
— —, dietary, effect of levels of on tissue concentration of pyridoxal-5-phosphate in pregnant and lactating rats, 1517.
— —, effect of deficiency on gluconeogenesis, 262.
— —, ε-pyridoxyllysine as antivitamin, 995.
— —, metabolism of various forms by man, 275.
— —, utilization by *Kloeckera brevis*, 954.
— —, utilization by *Saccharomyces uvarum*, 954.
Vitamin B-12 deficiency, methylmalonate excretion in, 1338.
— —, effect of deficiency and exposure to nitrous oxide on 5-methyltetrahydrofolate-homocysteine methyltransferase activity in rats, 223.
Vitamin C deficiency, in fish, anemia and leukocytosis in, 2172.
— — —, in guinea pigs, effects on lysosomal hydrolases, 2085.

— — —, in guinea pigs, effects on tissue prolyl hydroxylase activity, 1525.
— —, effects of dietary levels on tissue concentration of ascorbic acid, iron and copper in guinea pig tissues, 1398.
Vitamin D deficiency, effect on fertility, reproductive capacity, and fetal and neonatal development in rats, 1573.
— —, effect of low dietary protein on metabolism of, 28.
— — metabolites, effect on mobilization of bone calcium in intact and thyroparathyroidectomized rats, 2291.
Vitamin E deficiency, effect of dietary aspirin on, 1958.
— — —, effect of dietary dilauryl succinate on development of in chicks, 2045.
— — —, effect of dietary unsaturated fatty acids on development of in chicks, 2045.
— — —, in chicks, mechanism of dilauryl succinate effect, 2051.
— —, effect of deficiency on mitogenesis, 916.
— —, effect of deficiency on prostaglandin in rabbit muscle, 66.
— —, effect of deficiency on prostaglandin metabolism, 74.
— —, effect of ethoxyquin on deficiency signs of, 1372.
— —, requirements of, by rats, effect of age on, 1372.

X

Xylitol, dietary, effect on carbohydrate metabolism in rat liver, 1274.
—, —, effect on diarrhea and concentration of intestinal *Clostridium perfringens* in rats, 2103.

Z

Zinc, absorption, 469.
—, — by perfused rat intestine, 316.
—, —, effects of dietary tryptophan and picolinic acid on, 1076.
—, — in chicks, effect of cholecalciferol and 1,25-dihydroxycholecalciferol on, 1813.
—, —, relationship to intestinal metallathionein levels, 1391.
—, accumulation by isolated rat adipocytes, effect of age on, 2317.
—, and serum immunoglobulins, 805.
—, bioavailability, effect of phytate on, 2000.
—, —, in corn, rice, wheat and legumes, 2272.
—, —, methodology for measurement of, 2263.
—, — of different dietary phytate/zinc ratios, 1037.
— deficiency, effect on bone formation in guinea pigs, 1581.
— —, effect on glycosaminoglycan metabolism in guinea pig bone, 1581.
— —, effect on zinc concentration of uterine fluid, 591.
— —, impaired platelet aggregation in, 2125.
— —, in chicks, effect on bone collagen metabolism, 2095.
— —, in lactating rats, effect on behavior of offspring, 1858.
—, — in monkeys, 575.
—, deprivation and immune responses, 805.
—, dietary, effects on development and mineralization of teeth and bones and dental caries, 1032.
—, —, effect on sheep liver metallothionein, 460.
—, effect of dietary protein and phosphorus on utilization of by adult human males, 2243.
—, effect of postnatal deprivation on growth and development of mice, 201.
—, excretion, 469.
—, intracellular distribution in sheep liver, 448.
— lysosome stabilization by, 945.
—, metabolic efficiency, 469.
—, molecular localization in rat milk and rat pup intestine, 2414.
— picolinate, bioavailability of, for suckling rat pups, 2121.
—, relationship to polyunsaturated fatty acids in the chick, 50.
—, utilization, 469.
Zucker rat, effect of type of dietary carbohydrate on lipogenic enzymes, 1409.

THE JOURNAL OF

NUTRITION

OFFICIAL ORGAN OF THE AMERICAN INSTITUTE OF NUTRITION

JAMES S. DINNING, *Editor*
Food Science and Human Nutrition Department
University of Florida
Institute of Food and Agricultural Sciences
Gainesville, FL 32611

JOHN K. LOOSLI
Associate Editor

THOMAS H. JUKES
Biographical Editor

EDITORIAL BOARD

CAROLYN D. BERDANIER
PAUL GRIMINGER
G. RICHARD JANSEN
J. W. SUTTIE
MARIAN E. SWENDSEID
WILLIAM R. BEISEL
T. COLIN CAMPBELL
KENNETH J. CARPENTER
PETER HAHN
DUANE E. ULLREY
JO ANNE BRASEL
JAMES D. COOK
RICHARD A. FREEDLAND
RONALD R. JOHNSON
DOUGLAS C. HILL
GEORGE V. VAHOUNY
N. J. BENEVENGA
HOWARD E. GANTHER
ROBERT E. HODGES
RONALD L. PRIOR
QUINTON R. ROGERS
DATE R. ROMSOS
HOWERDE E. SAUBERLICH
WILLARD J. VISEK
BRIAN L. WALKER

VOLUME 110

JANUARY–DECEMBER 1980

PUBLISHED MONTHLY BY
THE AMERICAN INSTITUTE OF NUTRITION
BETHESDA, MARYLAND

THE JOURNAL OF NUTRITION®
*Trademark registered, U.S. Patent Office

Copyright © 1980 by
THE AMERICAN INSTITUTE OF NUTRITION
All rights reserved

Contents

No. 1 JANUARY 1980

Guide for Authors 1

Nomenclature Policy: Generic Descriptors and Trivial Names for Vitamins and Related Compounds 8

Charles Herbert Best—A Biographical Sketch. *Thomas A. Jukes* 17

Influence of Starvation and Refeeding on Cardiac Protein Degradation in Rats. *J. Stanley Crie, C. Fagg Sanford and Kern Wildenthal* 22

Effect of Dietary Protein on the Biological Activity of Cholecalciferol and its Metabolites in the Rachitic Rat. *Namala Raghuramulu and Hector F. DeLuca* 28

Maintenance Energy Requirements and Energy Retention of Young Obese and Lean Mice Housed at 33° and Fed a High-Carbohydrate or a High-Fat Diet. *Jerry G. Vander Tuig, Dale R. Romsos and Gilbert A. Leveille* 35

Plasma Methionine Levels in Normal Adult Subjects after Oral Loading with *L*-Methionine and *N*-Acetyl-*L*-Methionine. *Lewis D. Stegink, L. J. Filer Jr. and George L. Baker* ... 42

Interaction of Zinc and Polyunsaturated Fatty Acids in the Chick. *William J. Bettger, Philip G. Reeves, Ezio A. Moscatelli, James E. Savage and Boyd L. O'Dell* 50

Influence of Dietary Energy on the Nitrogen Sparing Action of Methionine and Arginine in Chicks Fed a Protein-Free Diet. *Tatsuo Muramatsu and Jun-Ichi Okumura* 59

Effects of Vitamin E Depletion and Repletion on Prostaglandin Synthesis in Semitendinosus Muscle of Young Rabbits. *Alvin C. Chan, C. Eugene Allen and P. Vincent J. Hegarty* 66

Effects of Vitamin E Depletion and Repletion on Prostaglandin Dehydrogenase Activity in Tissues of Young Rabbits. *Alvin C. Chan, P. Vincent J. Hegarty and C. Eugene Allen* 74

Effect of Long-Term Feeding of 10% Dietary Lactose on Serum, Liver and Aortic Cholesterol of the Rat and the Gerbil. *Bernard S. Wostmann and Edith Bruckner-Kardoss* 82

Relationship of Malic Enzyme Activity to Fatty Acid Synthesis and the Pathways of Glucose Catabolism in Developing Rat Liver. *Philip Madvig and S. Abraham* 90

Enzyme Activities During Development of Some Organs of the Rat. *P. Madvig and S. Abraham* 100

Alteration of Higher Order Structure of Rat Liver Chromatin by Dietary Composition. *Carmen Elizabeth Castro and J. Sanders Sevall* 105

Glucose Absorption and Starch Digestion in the Intestine of the Chicken. *G. Riesenfeld, D. Sklan, A. Bar, U. Eisner and S. Hurwitz* 117

Effect of Dietary Protein Composition on Placental Protein, Nucleic Acid, Free α Amino N and Enzymes in Rats. *Ram Devi Gupta and Kailash Nath Agarwal* 122

Effects of Dietary Phenylalanine Tyrosine on Circulating Thyroid Hormone Levels and Growth in the Chick. *Robert G. Elkin, W. R. Featherston and J. C. Rogler* 130

Protein Digestion and Absorption in Young Chicks and Turkeys. *D. Sklan and S. Hurwitz* 139

Isolation of Factors in Linseed Oil Meal Protective Against Chronic Selenosis in Rats. *Ivan S. Palmer, Oscar El Olson, Andrew W. Halverson, Roger Miller and Cecil Smith* ... 145

Abnormal Copper-Thionein Synthesis and Impaired Copper Utilization in Mutated Brindled Mice: Model for Menkes' Disease. *Hans W. Prins and Cornelis J. A. Van den Hamer* 151

Dietary Regulation of Hepatic 3-Hydroxy-3-Methylglutaryl-CoA Reductase and Cholesterol Synthetic Activities in Fasted-Refed Rats. *Takashi Ide, Yasunori Gotoh and Michihiro Sugano* 158

Critical Role of Adrenal Glands in Precocious Increase in Jejunal Sucrase Activity Following Premature Weaning in Rats: Negligible Effect of Food Intake. *John T. Boyle and Otakar Koldovský* 169

Prevalence, Metabolism and Migration of Goblet Cells in Rat Intestine Following the Induction of Rapid, Synchronous Vitamin A Deficiency. *Wannee Rojanapo, Adrian J. Lamb and James A. Olson* 178

Influence of Thyroid Hormone Treatment on Growth, Body Composition and Metabolism During Cold Stress in Genetically Obese Mice. *Shirley W. Thenen and Rosemary H. Carr* 189

Letters to the Editor 200

No. 2 FEBRUARY 1980

Growth and development in postnatally zinc-deprived mice. *Richard S. Beach, M. Eric Gershwin and Lucille S. Hurley* 201
The role of sulfate in the calciuria of high-protein diets in adult rats. *Susan J. Whiting and H. H. Draper* 212
Effect of dietary and nitrous oxide-induced vitamin B-12 deficiency on uptake of 5-methyltetrahydrofolate by isolated rat hepatocytes. *Donald W. Horne and William T. Briggs* 223
Varying deficits in visual discrimination performance associated with different forms of malnutrition in rats. *Janina R. Galler, Susan Fleischer, Gerald Turkewitz and Michael Manes* 231
Influence of individual amino acids on incorporation of ^{14}C leucine by rat liver ribosomes. *Keith L. Manchester and Errol M. Tyobeka* 241
Influence of dietary cholesterol on mitochondrial function in the rat. *Kenneth S. Rogers, Edwin S. Higgins and W. McLean Grogan* 248
Effects of diet on some hepatic enzyme activities in the pre-ruminant and ruminating calf. *J. Pearce and E. F. Unsworth* 255
Gluconeogenesis in meal-fed, vitamin B-6-deficient rats. *Joseph F. Angel* 262
Intestinal uptake of fatty acids complexed to proteins in the chick intestine. *D. Sklan and S. Hurwitz* 270
The metabolism of small doses of vitamin B-6 in men. *Janet R. Wozenski, James E. Leklem and Lorraine T. Miller* 275
Role of glucocorticoid in adaptive hyperlipogenesis. *Dorothy J. Bouillon and Carolyn D. Berdanier* 286
Effect of adrenalectomy on the responses of BHE rats to either a sucrose or starch diet. *Carolyn D. Berdanier and Beatrice B. Burrell* 298
Studies on the mechanism of protein-induced hypercalciuria in older men and women. *Sally A. Schuette, Michael B. Zemel and Hellen M. Linkswiler* 305
Quantitative aspects of zinc absorption by isolated, vascularly perfused rat intestine. *Kenneth T. Smith and Robert J. Cousins* 316
Bound sugars in hepatic glycoproteins from male rats during early protein depletion. *Nelson Wood and Louis C. Fillios* 324
The response of cyclic nucleotide content in liver and brown fat of rats weaned to different diets. *P. Hahn, J. P. Skala and S. Hassanali* 330
Effect of type of dietary fat on plasma and tissue cholesterol in calves. *Kathleen K. Barrows, Thomas R. Heeg, A. Dare McGilliard, Marlene J. Richard and Norman L. Jacobson* 335
Comparative effects of all-trans and 13-cis retinoic acid administration on serum and liver lipids in rats. *Leonard E. Gerber and John W. Erdman Jr.* 343
A silicon requirement for normal skull formation. *Edith M. Carlisle* 352
Dietary modification of the distribution of 3-hydroxy-3-methylglutaryl coenzyme A reductase and sterol synthesizing activities in the rat small intestine. *Michihiro Sugano, Takashi Ide, Hirashi Okamatsu, Yasuhiko Fujisaki and Hitoshi Takahara* 360
Letter to the Editor 371

No. 3 MARCH 1980

ARTICLES

Effects of Supplementation and Depletion of a Single Essential Amino Acid on Hepatic Polyribosome Profile in Rats. *Hidehiko Yokogoshi and Akira Yoshida* 375
Relationships Between Nutritional Quality of Dietary Proteins and Hepatic Polyribosome Profiles in Rats. *Hidehiko Yokogoshi, Yuok Sakuma and Akira Yoshida* 383
Regulation of Lipid Metabolism in Chicken Liver by Dietary Cereals. *Asaf. A. Qureshi, Warren C. Burger, Neville Prentice, Herbert R. Bird and Milton L. Sunde* 388
Induction of Threonine Imbalance by Dispensable Amino Acids: Relationships Between Tissue Amino Acids and Diet. *Jean K. Tews, Young-Woo Lee Kim and Alfred E. Harper* 394
Nutritional Significance of Increase in γ-Glutamyltransferase in Mouse Liver Before Birth. *Noriko Tateishi, Taneaki Higashi, Kayoko Nakashima and Yukiya Sakamoto* 409
Effects of Administration of N-Acetylneuraminic Acid (NANA) on Brain NANA Content and Behavior. *Brian L. G. Morgan and Myron Winick* 416
Effects of Environmental Stimulation on Brain N-Acetylneuraminic Acid Content and Behavior. *Brian L. G. Morgan and Myron Winick* 425
Influence of Time of Exposure to High Levels of Minerals on the Susceptibility of Chicks to *Salmonella Gallinarum*. *C. H. Hill* 433
Changes in Activity of the Manganese Superoxide Dismutase Enzyme in Tissues of the Rat with Changes in Dietary Manganese. *David I. Paynter* 437
Intracellular Distribution of Copper and Zinc in Sheep: Effect of Age and Dietary Levels of the Metals. *William W. Saylor and Roland M. Leach, Jr.* 448
Copper- and Zinc-binding Proteins in Sheep Liver and Intestine: Effects of Dietary Levels of the Metals. *William W. Saylor, Franklin D. Morrow and Roland M. Leach, Jr.* 460
Total True Efficiency of Zinc Utilization: Determination and Homeostatic Dependence Upon the Zinc Supply Status in Young Rats. *Edgar Weigand and Manfred Kirchgessner* 469
Rapid Changes in Rat Heart Lipoprotein Lipase Activity After Feeding Carbohydrate. *Mary E. Pedersen and Michael C. Schotz* 481
Myo-inositol-responsive Liver Lipid Accumulation in the Rat. *D. B. Andersen and B. J. Holub* 488
The Relative Response of Hepatic Lipids in the Rat to Graded Levels of Dietary Myo-inositol and Other Lipotropes. *D. B. Andersen and B. J. Holub* 496
Fatty Liver Due to Disproportionally Added Methionine to a Soybean Diet and Lipotropic Action of Phosphatides in Rats. *Katuhiko Noda and Takuo Okita* 505
Amerliorating Effect of Dietary Fiber on Toxicities of Chemicals Added to a Diet in the Rat. *Toshizo Kimura, Hiromi Furuta, Yasushi Matsumoto and Akira Yoshida* 513
Methionine Synthesis, Aminoimidazole Carboxyamide Excretion and Folate Levels in Pregnant Rats. *F. N'Diaye, Y. Hitier, G. Potier de Courcy, M. Goubern and G. Bourdel* .. 522
Effects of Manipulating Dietary Protein and Energy Intake on Energy Balance and Thermogenesis in the Pig. *Michael I. Gurr, Rodney Mawson, Nancy J. Rothwell and Michael J. Stock* 532
Effect of Maternal Protein-Calorie Malnutrition on Fetal Cerebellar Neurogenesis. *John C. Wallingford, Ruth E. Shrader and Frances J. Zeman* 543
Correlation of Dark Adaptation Test Results with Serum Vitamin A Levels in Diseased Adults. *Elizabeth A. Carney and Robert M. Russell* 552
Circadian Fluctuations in Liver and Blood Parameters in Rats Adapted to a Nutrient Solution by Oral, Intravenous and Discontinuous Intravenous Feeding. *Harry S. Sitren and Nancy R. Stevenson* 558
Effect of Atmospheric Oxidation on Bioavailability of Meat Iron and Liver Weights in Rats. *Kathleen M. Cardon, Rita J Anthony, Deloy G. Hendricks and Arthur W. Mahoney* .. 567
Zinc Deficiency in Rhesus and Bonnet Monkeys Including Effects on Reproduction. *Helene Swenerton and Lucille S. Hurley* 575
Change in Small Intestinal Digestive Enzyme Activity and Bile Acids with Dietary Cellulose in Rats. *Barbara O. Schneeman and Daniel Gallaher* 584

BRIEF COMMUNICATION

Low Zinc Concentration in Rat Uterine Fluid After Four Days of Dietary Deficiency. *Daniel Gallaher and Lucille S. Hurley* 591

No. 4 APRIL 1980

ARTICLES

Effects of Dietary Protein and EFA Deficiency on Liver Δ5, Δ6 and Δ9 Desaturase Activities in the Early Developing Rat. *María E. De Tomás, Osvaldo Mercuri and Adelaida Rodrigo* 595
Effect of Pregnancy, Lactation and a High-Fat Diet on Adipose Tissue in Osborne-Mendel Rats. *Laufey Steingrimsdottir, M. R. C. Greenwood and Jo Anne Brasel* 600
Possible Metabolic Implications of Pyruvate and Lactate Accumulation in the Liver of Pregnant Rats. *Odette Champigny, Yvonne Hitier and Geneviève Bourdel* 610
Value of Dietary Protein for Hyperplastic Growth at Restricted Energy Intakes. *Brian L. G. Morgan and D. J. Naismith* 618
Leucine, Isoleucine, Valine and Histidine Requirements of Fingerling Channel Catfish. *Robert P. Wilson, William E. Poe and Edwin H. Robinson* 627
Comparison of the Nutritive Values of L-, DL- and D-Tryptophan in the Rat and Chick. *Ikuo Ohara, Shin-ichiro Otsuka, Yasumi Yugari and Shujiro Ariyoshi* 634
Inversion of D-Tryptophan to L-Tryptophan and Excretory Patterns in the Rat and Chick. *Ikuo Ohara, Shin-ichiro Otsuka, Yasumi Yugari and Shujiro Ariyoshi* 641
Long-term Morphological and Metabolic Effects of Early Under- and Over-Nutrition in Mice. *Roberte Aubert, Jean-Pierre Suquet and Daniel Lemonnier* 649
Histamine and Ascorbic Acid in Human Blood. *C. Alan B. Clemetson* 662
Effect of Starvation and Refeeding a High-Protein or High-Carbohydrate Diet on Lipid Composition and Glycogen Content of Rat Livers in Relation to Age. *Werner Weigand, Ewald Hannappel and Karl Brand* 669
Distribution and Mobility of ω3 Fatty Acids in Rainbow Trout Fed Varying Levels and Types of Dietary Lipid. *Allan J. Castledine and J. Thomas Buckley* 675
Effects of Medium- and Long-Chain Triglyceride Diets in the Genetically Obese Zucker Rat. *André Bach, Henri Schirardin, Françoise Chanussot, Marthe Bauer and André Weryha* 686
Effect of Feeding Cassava Root Meal on Reproduction and Growth of Rabbits. *N. O. Eshiett, A. A. Ademosun and T. A. Omole* 697
Lack of Diabetogenic Effect of Alloxan in Protein-Calorie Malnourished Rats. *John K. Young and Padmaker K. Dixit* 703
Evaluation of an Infusion Solution Enriched with Branched Chain Amino Acids in Parenteral Nutrition of Rats. *Tetsuya Kishi, Yasuo Iwasawa, Hiroshi Itoh and Ichiro Chibata* 710
Effects of High Ascorbic Acid Intake on the Metabolism of Catecholamines in the Rat. *Willy A. Behrens and René Madère* 720
Moderate Sucrose Ingestion and Blood Pressure in the Rat. *Richard A. Ahrens, Polly Demuth, Miyoung K. Lee and Jesse W. Majkowski* 725
Effects of Dietary Proteins from a Variety of Sources on Plasma Lipids and Lipoproteins of Rats. *L. B. Neves, C. K. Clifford, G. O. Kohler, D. de Fremery, B. E. Knuckles, C. Cheowtirakul, M. W. Miller, W. C. Weir and A. J. Clifford* 732
Effect of Selenium on Appetite in the Selenium-Deficient Chick. *M. J. Bunk and G. F. Combs Jr.* 743
Specific Dynamic Action and Diet in Largemouth Bass, *Micropterus salmoides* (Lacépède). *Amos Tandler and F. William H. Beamish* 750
A Comparison of Two Nonlinear Models for Describing Intake-Response Relationships in Higher Organisms. *Glenn O. Ware, R. Dixon Phillips, Rudolph S. Parrish and Leonard C. Moon* 765
Effect of Modern Chronic Protein Deficiency on Rat Salivary Components. *Ronald R. Watson and Magda Antal* 771
Influence of Adult Age on the Skeletal Response to Phosphate and Estrogen in Rats. *H. H. Draper, R. Raines Bell and Keun S. Shin* 778
Phosphorus Nutrition and Fasting: Interrelated Factors Which Affect the Survival of Young Chickens Exposed to High Ambient Temperature. *Charles C. McCormick, J. D. Garlich and F. W. Edens* 784
Regulation of Superoxide Dismutase Activity by Dietary Manganese. *Guglielmo de Rosa, Carl L. Keen, Roland M. Leach and Lucille S. Hurley* 795
Impaired Immunologic Ontogeny in Postnatal Zinc Deprivation. *Richard S. Beach, M. Eric Gershwin, Ronald K. Makishima and Lucille S. Hurley* 805
Orotic Acid-Induced Metabolic Changes in the Rat. *Roberta P. Durschlag and James L. Robinson* 816
Species Specificity in the Metabolic Consequences of Orotic Acid Consumption. *Roberta P. Durschlag and James L. Robinson* 822
Effect of Isolated Soybean Protein on Magnesium Bioavailability. *Grace S. Lo, Fred H. Steinke and Daniel T. Hopkins* 829
Effect of Calcium Deficiency on Survival Time of Young Chickens Acutely Exposed to High Temperature. *Charles C. McCormick, J. D. Garlich, and F. W. Edens* 837

No. 5 MAY 1980

ARTICLES

Blood and Mast Cell Histamine Levels in Magnesium-Deficient Rats. *Sandra L. Kraeuter and Ruth Schwartz* 851
Conversion of [2-^{14}C] Mevalonate Into Cholesterol, Lanosterol and Squalene in Copper-Deficients Rats. *M. J. S. Shao and K. Y. Lei* 859
Sulfate Metabolism in Vitamin A-Deficient Rats. *P. S. Mohan and Kamala S. Jaya Rao* .. 868
Dietary Control of Circadian Variations in Serum Insulin, Glucagon and Hepatic Cyclic AMP. *Martin Tiedgen and Hans J. Seitz* 876
Effect of Maternal Dietary Restriction During Pregnancy on Maternal Weight Gain and Fetal Birth Weight in the Rat. *Garland D. Anderson, Robert A. Ahokas, Jeffrey Lipshitz and Preston V. Dilts Jr.* 883
Effect of Essential Fatty Acid Deficiency on Experimental Allergic Encephalomyelitis in Rats. *Seymour Levine and Richard Sowinski* 891
Effect of Dietary Iron, Copper and Zinc Chelates of Nitrilotriacetic Acid (NTA) on Trace Metal Concentrations in Rat Milk and Maternal and Pup Tissues. *Carl L. Keen, Bo Lonnerdal, Martin V. Sloan and Lucille S. Hurley* 897
Studies on the Utilization of Lysinoalanine and Lanthionine. *Kelly R. Robbins, David H. Baker and John W. Finley* 907
Influence of Vitamin E on the Mitogenic Response of Murine Lymphoid Cells. *Laurence M. Corwin and Janet Shloss* 916
Effect of Corn Oil Feeding on Lipid Peroxidation in Rats. *Nobuko Iritani, Eiko Fukuda and Yohko Kitamura* 924
Effect of Garlic on Carbohydrate Metabolism and Lipid Synthesis in Rats. *Mei Ling W. Chang and Margaret A. Johnson* 931
Effects of Thiamin Deprivation and Antagonism on Voluntary Ethanol Intake in Rats. *Leena Pekkanen* 937
Reversible Stabilization of Liver Lysosomes by Zinc Ions. *Janet C. Ludwig and Milos Chvapil* 945
Growth Response of the Yeasts *Saccharomyces uvarum* and *Kloeckera brevis* to the Free Biologically Active Forms of Vitamin B-6. *Tomas R. Guilarte, Patricia A. McIntyre and Min-Fu Tsan* 954
Utilization of the D- and L-Isomers of Methionine and Methionine Hydroxy Analogue as Determined by Chick Bioassay. *David H. Baker and Katherine P. Boebel* 959
Effect of Form of Iron on the Interaction Between Nickel and Iron in Rats: Growth and Blood Parameters. *Forrest H. Nielson* 965
Diurnal Variation in Oxidation of L-[1-^{14}C] Leucine and L-[1-^{14}C]Lysine in Rats. *Wayne T. Buckley and Ronald R. Marquardt* 974
Effects of Short-Term Dietary Glucose and Fructose on Rat Serum Triglyceride Concentration. *Louise S. Merkens, Helen M. Tepperman and Jay Tepperman* 982
Digestion and Absorption of Casein at Different Dietary Levels in the Chick: Effect on Fatty Acid and Bile Acid Absorption. D. Sklan 989
Effects of ε-Pyridoxyllysine Bound to Dietary Protein on the Vitamin B-6 Status of Rats. *Jesse F. Gregory III* 995
Effect of Strain, Sex and Duration of Feeding on Plasma Fatty Acids of Rats Fed Various Dietary Oils. *Sheila M. Innis and Michael T. Clandinin* 1006
Suppression of Cholesterol and Stimulation of Fatty Acid Biosynthesis in Chicken Livers by Dietary Cereals Supplemented with Culture Filtrate of *Trichoderma Viride*. *Asaf A. Quresh, Warren C. Burger, Neville Prentice, Herbert R. Bird and Milton L. Sunde* 1014
Response of Rats Fed Diets Low in Glucose and Glucose Precursors to Low Levels of Glucose, Starch and Chemically Modified Starch. *S. C-H. Chen, S. Tsai and M. C. Nesheim* 1023
Effects of Zinc Deficiency on Dental Caries in Rats. *M. M. Fang, K. Y. Lei and L. T. Kilgore* 1032
Effect of Dietary Phytate/Zinc Molar Ratio on Growth and Bone Zinc Response of Rats Fed Semipurified Diets. *Eugene R. Morris and Rex Ellis* 1037
Biochemical and Morphological Changes Associated with Long Bone Abnormalities in Silicon Deficiency. *Edith M. Carlisle* 1046
Effect of Dietary Protein Level upon Essential Fatty Acid (EFA) Deficiency. *Eldon G. Hill and Ralph T. Holman* 1057
Nutritional Value of Normal, Opaque-2 and Sugary-2 Opaque-2 Maize Hybrids for Infants and Children. 1. Digestibility and Utilization. *George G. Graham, David V. Glover, Guillermo Lopez de Romaña, Enrique Morales and William C. MacLean Jr.* 1061
Nutritional Value of Normal, Opaque-2 and Sugary-2 Opaque-2 Maize Hybrids for Infants and Children. 2. Plasma Free Amino Acids. *George G. Graham, Robert P. Placko and William C. MacLean Jr.* 1070
Zinc Absorption in Rats Fed a Low-Protein Diet and a Low-Protein Diet Supplemented with Tryptophan or Picolinic Acid. *Gary W. Evans and Elaine C. Johnson* 1076

No. 6 JUNE 1980

ARTICLES

Alfred Theodore Shohl—A Biographical Sketch. *Franklin C. Bing* 1081
A Biological Assay for Determination of Availability of Selenium for Restoring Blood Plasma Glutathione Peroxidase Activity in Selenium-Depleted Chicks. *Bjørn O. Gabrielsen and Johannes Opstvedt* 1089
Availability of Selenium in Fish Meal in Comparison with Soybean Meal, Corn Gluten Meal and Selenomethionine Relative to Selenium in Sodiumselenite for Restoring Glutathione Peroxidase Activity in Selenium-Depleted Chicks. *Bjørn O. Gabrielsen and Johannes Opstvedt* 1096
Nutritional Interrelationships Between Calcium, Phosphorus and Lactose in Rats. *G. Schaafsma and R. Visser* 1101
Effects of Several Types of Dietary Fibers on Lipid Content in Liver and Plasma, Nutrient Retentions and Plasma Transaminase Activities in Force-Fed Growing Chicks. *Yukio Akiba and Tatsuro Matsumoto* 1112
Molecular Structure of Glycerolipids in Rats Fed Partially Hydrogenated Triacylglycerols. *Irene Reichwald-Hacker, Sylvia Grosse-Oetringhaus, Irmgard Kiewitt and Kumar D. Mukherjee* 1122
Bile Salt Adsorption Ability of Dietary Fiber from Named Varieties of Carrot at Different Developmental Ages. *J. A. Robertson, M. A. Eastwood and M. J. Yeoman* 1130
Effect of Corn Oil Feeding on Triglyceride Synthesis in the Rat. *Nobuko Iritani and Eiko Fukuda* 1138
Effect of Dietary Protein Restriction on Chromatin Proteins of Rat Mammary Gland. *R. T. Ravi and N. C. Ganguli* 1144
Essential Fatty Acids for the Mosquito *Culex Pipiens*. *R. H. Dadd* 1152
Long-Term Effects of Calcium, Phosphorus and Forced Exercise on the Bones of Mature Mice. *R Raines Bell, D. Y. Tzeng and H. H. Draper* 1161
Metabolic Responsiveness of Different Size Adipocytes to Fasting and Refeeding in the Pig. *Terry D. Etherton and C. Eugene Allen* 1169
Effects of Undernutrition and Refeeding on Enzyme Activities and Rates of Glucose Catabolism in Rat Epididymal Adipose Tissue. *Kim Timmers and Jerome L. Knittle* ... 1176
Evidence of Facilitory Effect of Growth Hormone on Tissue Vitamin A Uptake in Rats. *Gurpreet S. Ahluwalia, Lalita Kaul and Balwant S. Ahluwalia* 1185
Lowering of Serum Cholesterol and Triglyceride Levels by Balancing Amino Acid Intake in the White Rat. *Gregory M. Torre, Vincent de Paul Lynch and Charles I. Jarowski* 1194
Effects of Methionine Supplementation on the Incidence of Dietary Fat Induced Myocardial Lesions in the Rat. *Michael T. Clandinin and Shigeto Yamashiro* 1197
Effect of Dietary Arginine Level on Urinary Orotate and Citrate Excretion in Growing Kittens. *Michael J. Costello, James G. Morris and Quinton R. Rogers* 1204
Myo-Inositol Deficiency in Gerbils: Comparative Study of the Intestinal Lipodystrophy in *Meriones unguiculatus and Meriones libycus*. *Shu-heh W. Chu and D. M. Hegsted* .. 1209
Myo-Inositol Deficiency in Gerbils: Changes in Phospholipid Composition of Intestinal Microsomes. *Shu-heh W. Chu and D. M. Hegsted* 1217
Serum and Liver Lipids in Growing Rats Fed Casein with L-Lysine. *Patricio Hevia, Frank W. Kari, Edward A. Ulman and Willard J. Visek* 1224
Serum Lipids of Rats Fed Excess L-Lysine and Different Carbohydrates. *Patricio Hevia, Edward A. Ulman, Frank W. Kari and Willard J. Visek* 1231
D-Methionine Utilization in Adult Monkeys Fed Diets Containing DL-Methionine. *Lewis D. Stegink, Jesse Moss, Kenneth J. Printen and Ei Soon Cho* 1240
Effect of Dietary Wheat Bran, Alfalfa, Pectin and Carrageenan on Plasma Cholesterol and Fecal Bile Acid and Neutral Sterol Excretion in Rats. *Bandaru S. Reddy, K. Watanabe and Aron Sheinfil* 1247
Dietary Selenium and Cadmium Interrelationships in Growing Swine. *Katherine M. Flegal, Earle E. Cary, Wilson G. Pond and Lennart P. Krook* 1255
Thyroid Hormones and Efficiency of Energy Utilization in Mice Selected for Body Weight. *Aubrey L. Cartwright, James M. Leatherwood and Eugene J. Eisen* 1262
Effects of Dietary Xylitol on Redox State and Gluconeogenesis in the Rat Liver. *Faye M. Dong, Wilburta J. Hartman and Marleen M. Wekell* 1274
Invitations for Nominations 1285

No. 7 JULY 1980

ARTICLES

Marginal Protein Deficiency in Pregnant Rats. I. Changes in Maternal Body Composition. *Gary N. Zartarian, Janina R. Galler and Hamish N. Munro* 1291
Marginal Protein Deficiency in Pregnant Rats. II. Impaired Behavior During Pregnancy. *Janina R. Galler, Gary N. Zartarian, A. Leah Neel and Hamish N. Munro* 1298
Effect of Dietary Lipids on Growth, Tissue Composition and Metabolism of the Oyster (*Crassostrea virginica*). *Donald J. Trider and John D. Castell* 1303
Effect of Food Intake on Hypermetabolic Response to Burn Injury in Guinea Pigs. *Robert R. Wolfe, Michael J. Durkot, Carolyn C. Clarke, Hans H. Bode and John F. Burke* 1310
Indices of Skeletal Muscle Growth in Lean and Obese Zucker Rats. *John F. Shapira, Ingrid Kircher and Roy J. Martin* 1313
Complementation of Predigested Proteins: A Nutritionally and Economically Advantageous Method of By-Products Utilization. *Milos Chvapil, Judith B. Ulreich and Brian Hunter* 1319
Effect of Dietary Proteins and Amino Acid Deficiencies on Urinary Excretion of Nitrogen and the Urea Synthesizing System in Rats. *Kazutoshi Hayase, Hidehiko Yokogoshi and Akira Yoshida* 1327
Relationship of Urinary Methylmalonic Acid to Vitamin B-12 Concentrations and Hematologic Changes in Rats Fed Vitamin B-12-Deficient Diets. *John J. Brink, Robert A. Beck, Jane S. Miller and Shirley W. Thenen* 1338
Effect of Dietary Protein Quality and Quantity on Hepatic Polyribosome Profiles in Rats. *Hidehiko Yokogoshi, Yuko Sakuma and Akira Yoshida* 1347
Intestinal Secretion of Lipids and Lipoproteins During Carbohydrate Absorption in the Rat. *Nancy K. Hunsdorfer and Judith A. Marlett* 1354
Magnesium Absorption from Leafy Vegetables Intrinsically Labeled with the Stable Isotope. *Ruth Schwartz, D. L. Grunes, R. A. Wentworth and E. M. Wien* 1365
Influence of Age on the Vitamin E Requirement for Resolution of Necrotizing Myopathy. *Edda Gabriel, L. J. Machlin, R. Filipski and J. Nelson* 1372
Regulation of Protein Synthesis and Enzyme Accumulation in the Rat Pancreas by Amount and Timing of Dietary Protein. *Anik Girard-Globa, Geneviève Bourdel and Bernard Lardeux* 1380
Zinc Absorption and Its Relationship to Intestinal Metallothionein. *Barry C. Starcher, James G. Glauber and Judy G. Madaras* 1391
Interrelationship of Dietary Ascorbic Acid and Iron on the Tissue Distribution of Ascorbic Acid, Iron and Copper in Female Guinea Pigs. *Christine Hamilton Smith and Wayne R. Bidlack* 1398
Metabolic Responses of Zucker Fatty and Lean Rats Fed Carbohydrate Diets Ad Libitum or in Meals. *Otho E. Michaelis IV, Daniel J. Scholfield, Lilly B. Gardner and Samuel Cataland* 1409
Thyroid and Growth Responses of Young Zucker Obese and Lean Rats to a Low Protein-High Carbohydrate Diet. *Ruth A. Young, Orien L. Tulp and Edward S. Horton* 1421
Glucose Homeostasis in Fetuses of Protein-Deprived and Hypothyroid Pregnant Rats. *Denise M. Brown, Ruth E. Shrader and Frances J. Zeman* 1432
Estimators of Body Nitrogen in Growing Rats Fed Varying Levels and Qualities of Protein. *R. Dixon Phillips* 1441
Reduction in Neonatal Lead Exposure by Supplemental Dietary Iron During Gestation and Lactation in the Rat. *Florian L. Cerklewski* 1453
Metabolism of ^{14}C-Phytate in Rats: Effect of Low and High dietary Calcium Intakes. *Aratoonnaz Nahapetian and Vernon R. Young* 1458
Regulation of Lipid Metabolism in Chicken Liver by Dietary Cereals Supplemented with Culture Filtrate of *Trichoderma Viride*. *Asaf A. Qureshi, Warren C. Burger, Neville Prentice and Charles E. Elson* 1473
Changes in Concentrations of Insulin, Growth Hormone and Metabolites in Plasma with Spontaneous Feeding in Lactating Dairy Cows. *Regina Vasilatos and Paul J. Wangsness* 1479
Effects of Vitamin A and Ascorbic Acid on In Vitro Cholesterol Biosynthesis in the Rat. *James G. Elliott and Paul A. Lachance* 1488
Effects of Linolenic Acid Deficiency on the Fatty Acid Patterns in Plasma and Liver Cholesteryl Esters, Triglycerides and Phospholipids in Female Rats. *J. Tinoco, G. Endemann, I. Hincenbergs, B. Medwadowski, P. Miljanich and M. A. Williams* 1497
Errata 1506

No. 8 AUGUST 1980

ARTICLES

Effect of Moderate or Severe Protein Restriction during Pregnancy on Sow and Progeny Digestive Enzymes. *R. G. Shields Jr., D. C. Mahan and K. E. Ekstrom* 1507
Effects of Pregnancy and Lactation on Pyridoxal 5′-Phosphate in Plasma, Blood and Liver of Rats Fed Three Levels of Vitamin B-6. *Marcia S. Sloger and Robert D. Reynolds* 1517
Activation of Prolyl Hydroxylase in Tissue Homogenates of Scorbutic Guinea Pigs. *Ramadasan Kuttan* 1525
Essentiality of Dietary Carbohydrate for Maintenance of Liver Lipogenesis in the Chick. *Bruce L. Hillard, Paula Lundin and Steven D. Clarke* 1533
Intestinal Microflora in the Guinea Pig as Observed by Scanning Electron Microscopy. Effect of Fibrous Dietary Supplements. *A. W. Knehans and B. L. O'Dell* 1543
Influence of Dietary Fat Concentration and Saturation on Immune Ontogeny in Mice. *Kent L. Erickson, Carla J. McNeill, M. Eric Gershwin and John B. Ossmann* 1555
Effect of Vitamin D Deficiency on Fertility and Reproductive Capacity in the Female Rat. *Bernard P. Halloran and Hector F. Deluca* 1573
Zinc Deficiency and Bone Formation in Guinea Pig Alveolar Implants. *H. Steve Hsieh and Juan M. Navia* 1581
Mode of Action of Pharmacological Doses of Cholecalciferol during Parturient Hypocalcemia in Dairy Cows. *Timothy A. Reinhardt and Harry R. Conrad* 1589
Management of Pyridoxine and Pyridoxal in the Isolated Kidney of the Rat. *Michael W. Hamm, Haile Mehansho and Lavell M. Henderson* 1597
Effect of Magnesium Deficiency on Rat Bone and Kidney Sensitivity to Parathyroid Hormone. *Richard M. Forbes and Helen M. Parker* 1610
Availability to Rats of Iron from Spinach: Effects of Oxalic Acid. *Darrell R. Van Campen and Ross M. Welch* 1618
Maturation of Calcium Transport in the Rat Small and Large Intestine. *Fayez K. Ghishan, Joseph T. Jenkins and M. Kabir Younoszai* 1622
Chemoprevention of Tumor Development and Metastasis of Transplantable Hepatocellular Carcinomas in Rats by Vitamin A. *Dorothy M. Morré, Thomas M. Kloppel, Ann L. Rosenthal and Paula C. Fink* 1629
Effect of Protein Quantity and Quality on Plasma Response to an Oral Dose of Vitamin A as an Indicator of Hepatic Vitamin A Reserves in Rats. *Barbara A. Underwood* 1635
Intestinal Absorption and Retention of Cadmium in Neonatal Pigs Compared to Rats and Guinea Pigs. *L. B. Sasser and G. E. Jarboe* 1641
Target Organ Pathology in Iron-Deficient Suckling Rats. *Hans Rothenbacher and Adria Rothman Sherman* 1648
Transport and Metabolism of Pyridoxine in the Perfused Small Intestine and the Hind Limb of the Rat. *Daniel D. Buss, Michael W. Hamm, Haile Mehansho and Lavell M. Henderson* 1655
Reduction of Lipogenic Enzymes by Shellfish Triglycerides in Rat Liver. *N. Iritani, E. Fukuda, K. Inoguchi, M. Tsubosaka and S. Tashiro* 1664
Effect of Sampling on Fatty Acid Composition of Human Colostrum. *Robert A. Gibson and Garry M. Kneebone* 1671
Effects of Dietary Proteins and Amino Acid Mixtures on Plasma Cholesterol Levels in Rabbits. *Murray W. Huff and Kenneth K. Carroll* 1676
Effect of Dietary Level of Protein on Liver Microsomal Drug-Metabolizing Enzymes, Urinary Ascorbic Acid and Lipid Metabolism in Rats Fed PCB-Containing Diets. *Norihisa Kato, Takeshi Tani and Akira Yoshida* 1686
Effects of Dietary Essential Fatty Acid Concentration upon Prostanoid Synthesis in Rats. *Jacqueline Dupont, Melvin M. Mathias and Patricia T. Connally* 1695
Effects of Level and Source of Dietary Fat on the Bioavailability of Iron from Turkey Meat for the Anemic Rat. *Arthur W. Mahoney, Bonnie R. Farmer and Deloy G. Hendricks* 1703
Effects of Branched-Chain α-Keto Acids on Enzymes Involved in Branched-Chain α-Keto Acid Metabolism in Rat Tissues. *S. Hauschildt and K. Brand* 1709
Proceedings of the Forty-Fourth Annual Meeting of the American Institute of Nutrition ... 1717
Second Report of the ad hoc Committee on Standards for Nutritional Studies 1726

No. 9 SEPTEMBER 1980

ARTICLES

Protein Requirements of Normal Infants at the Age of about 1 Year: Maintenance Nitrogen Requirements and Obligatory Nitrogen Losses. *P. C. Huang, C. P. Lin and J. Y. Hsu* 1727
The Ineffectiveness of Supplementary Cystine in Legume-Based Rat Diets. *Kerry A. C. James and Edwin L. Hove* 1736
Studies on Estrogen Receptors in Rat Uterus during Protein Malnutrition and Steroid-Maintained Pregnancy. *R. K. Singh and S. K. Roy* 1745
Comparative Effects of Iron Deficiency Induced by Bleeding and a Low-Iron Diet on the Intestinal Absorptive Interactions of Iron, Cobalt, Manganese, Zinc, Lead and Cadmium. *Peter R. Flanagan, James Haist and Leslie S. Valberg* 1754
Portal Insulin and Glucagon in Rats Fed Proteins as a Meal: Immediate Variations and Circadian Modulations. *Claire Jarrousse, Bernard Lardeux, Geneviève Bourdel, Anik Girard-Globa and G. Rosselin* 1764
Effect of Dietary Fiber on Mineral Absorption in Growing Rats. *Anna-Elisabeth Harmuth-Hoene and Rieder Schelenz* 1774
Rate of Fat Compensation and Growth Efficiency of Lipectomized Sprague Dawley Rats. *J. W. Bailey and D. B. Anderson* 1785
Metabolism of Orally and Intravenously Administered Purines in Rats. *D. A. Savaiano, C. Y. Ho, V. Chu and A. J. Clifford* 1793
Total Aromatic Amino Acid Requirement, Phenylalanine Requirement and Tyrosine Replacement Value for Fingerling Channel Catfish. *Edwin H. Robinson, Robert P. Wilson and William E. Poe* 1805
Effect of Cholecalciferol and 1,25-Dihydroxycholecalciferol on the Intestinal Absorption of Zinc in the Chick. *Sung I. Koo, Curtis S. Fullmer and Robert H. Wasserman* 1813
Bioavailability of Vitamin B-6 from Wheat Bread in Humans. *James E. Leklem, Lorraine T. Miller, Anne D. Perera and Diane E. Peffers* 1819
Effect of Energy Intake during Pregnancy and Lactation on Body Composition in Rats. *Uthai Kanto and Albert J. Clawson* 1829
Use of Deuterium Oxide for the In Vivo Prediction of Body Composition in Female Rats in Various Physiological States. *Uthai Kanto and Albert J. Clawson* 1840
Utilization of the Protein and Energy of the White Potato by Human Infants. *Guillermo Lopez de Romaña, George G. Graham, E. David Mellits and William C. MacLean Jr.* 1849
Malnutrition and Behavior: the Performance Versus Learning Problem Revisited. *Edward S. Halas and Harold H. Sandstead* 1858
Comparative Amino Acid and Protein Metabolism in Obese and Non-Obese Zucker Rats. *Michael A. Dunn and E. W. Hartsook* 1865
Effect of High-Fat, High-Beef Diet and of Mode of Cooking of Beef in the Diet on Fecal Bacterial Enzymes and Fecal Bile Acids and Neutral Sterols. *Bandaru S. Reddy, Debra Hanson, Surinder Mangat, Laurel Mathews, Michele Sbaschnig, Chand Sharma and Barbara Simi* 1880
Effects of Severe Calorie Restriction on Thymic Factor Activity and Lymphocyte Stimulation Response in Rats. *Gloria Heresi and R. K. Chandra* 1888
Influence of Graded Levels of Fat on Utilization of Pure Carbohydrate by the Laying Hen. *Gonzalo G. Mateos and Jerry L. Sell* 1894
Glucose and Lactate Absorption and Metabolic Interrelationships in Lambs Switched from Low to High Concentrate Diets. *Gerald B. Huntington, Ronald L. Prior and Robert A. Britton* 1904
Effects of Iron on the Anti-Coli Capacity of Sow's Milk In Vitro and in Ligated Intestinal Segments. *Kirk C. Klasing, Chris D. Knight and Dale M. Forsyth* 1914
Letters to the Editor 1922

No. 10 OCTOBER 1980

ARTICLES

Floyd Sheldon Doft (1900–1978): A Biographical Sketch 1925
Absorption and Excretion of Cholecalciferol and of 25-Hydroxycholecalciferol and Metabolites in Birds. *Arie Bar, Matitaho Sharvit, Dina Noff, Samuel Edelstein and Shmuel Hurwitz* 1930
Influence of Cholesterol and Fat Feeding on Hepatic Lysosomal Enzymes in Guinea Pigs. *Bente I. Beck and Christian Drevon* 1935
Effect of Strain, Sex and Dietary Riboflavin on Pyridoxamine (Pyridoxine) 5′-Phosphate Oxidase Activity in Rat Tissues. *Kathleen M. Rasmussen, Patrice M. Barsa, Donald B. McCormick and Daphne A. Roe* 1940
Influence of Supplemental Dietary Vitamin A on the Reproductive Performance of Iodine-Toxic Rats. *Howard D. Stowe, Francisco Rangel, Carole Anstead and Barbara Goelling* 1947
Effects of Aspirin and Related Drugs in Vitamin E-Deficient Rats. *L. J. Machlin, E. Gabriel, L. R. Horn, D. Woo, R. Filipski, M. Brin and J. Nelson* 1958
Pyridoxine Kinase, Pyridoxine Phosphate Phosphatase and Pyridoxine Phosphate Oxidase Activities in Control and B-6-Deficient Rat Liver and Brain. *Natalie T. Meisler and John W. Thanassi* 1965
Effect of Intrajugular Administration of Insulin on Feed Intake, Plasma Glucose and Plasma Insulin of Sheep. *Lawrence E. Deetz and Paul J. Wangsness* 1976
Effect of Intraportal and Continuous Intrajugular Administration of Insulin on Feeding in Sheep. *Lawrence E. Deetz, Paul J. Wangsness, John F. Kavanaugh and Lester C. Griel Jr.* 1983
Effects of Dietary Pectin and Fat on the Small Intestinal Contents and Exocrine Pancreas of Rats. *Lawrence P. Forman and Barbara O. Schneeman* 1992
Bioavailability to Rats of Iron and Zinc in Wheat Bran: Response to Low-Phytate Bran and Effect of the Phytate/Zinc Molar Ratio. *Eugene R. Morris and Rex Ellis* 2000
Effects of Intravenous Infusions of Glucose, Lactate, Propionate or Acetate on the Induction of Lipogenesis in Bovine Adipose Tissue. *Ronald L. Prior and R. Allen Scott* .. 2011
Effect of Refined Cellulose on Apparent Energy, Fat and Nitrogen Digestibilities. *Joanne L. Slavin and Judith A. Marlett* 2020
Long-Term Effects of Early Nutritional Experience on the Development of Obesity in the Rat. *Irving M. Faust, Patricia R. Johnson and Jules Hirsch* 2027
The Heart in Protein-Calorie Malnutrition in Rats: Morphological, Electrophysiological and Biochemical Changes. *Odecio Pissaia, Marcos A. Rossi and João S. M. Oliveira* ... 2035
Comparison in Inducing Effect on Vitamin E Deficiency Symptoms in Chicks between Dilauryl Succinate and Unsaturated Fatty Acids. *Haruhisa Ikumo* 2045
Effect of Monolauryl Succinate, Lauryl Alcohol and Succinic Acid on Hemolysis and Liver Mitochondrial Lysis in Vitro in Chicks. *Haruhisa Ikumo* 2051
Growth Depression in Taurine-Depleted Infant Monkeys. *K. C. Hayes, Zouhair F. Stephan and John A. Sturman* 2058
Excretion and Tissue Distribution of Radioactive Lysinoalanine, Nε-DL-(2-Amino-2-Carboxyethyl)-U-^{14}C-L-Lysine (LAL) in Sprague-Dawley Rats. *Barbara J. Struthers, Janice R. Brielmaier, Marvin L. Raymond, Robert R. Dahlgren and Daniel T. Hopkins* 2065
A Biochemical and Ultrastructural Study of Skeletal Muscle from Rats Fed a Magnesium-Deficient Diet. *Bonnie L. Robeson, William G. Martin and Morton H. Friedman* 2078
Effects of Chronic Ascorbic Acid Deficiency on Guinea Pig Lysosomal Hydrolase Activities. *Susan K. Hoehn and Julian N. Kanfer* 2085
Effect of Zinc Deficiency on Bone Collagenase and Collagen Turnover. *Barry C. Starcher, Charles H. Hill and Judy G. Madaras* 2095
Incidence of Increased Numbers of *Clostridium perfringens* in the Intestinal Tract of Rats Fed Xylitol. *Marleen W. Wekell, Wilburta J. Hartman and Faye M. Dong* 2103
Sex Variation in Dietary Regulation of Insulin Receptors in Man. *Robert I. Misbin and Andrea Pullkinen* 2109
Effect of Riboflavin Analogs on the Growth of *Tetrahymena pyriformis*. *William C. Wallace and Chester E. Holmlund* 2113
Biological Activity of 1,N^6-Ethenothiamin, a Fluorescent Analog of Thiamin, in Rats. *Wendell A. Gibby and Clark J. Gubler* 2117

BRIEF COMMUNICATIONS

Zinc Concentration of Liver and Kidneys from Rat Pups Nursing Dams Fed Supplemental Zinc Dipicolinate or Zinc Acetate. *Gary W. Evans and Elaine C. Johnson* 2121
Rat Platelet Aggregation Impaired by Short-Term Zinc Deficiency *Phil R. Gordon and Boyd L. O'Dell* 2125
Letters to the Editor 2130

No. 11 NOVEMBER 1980

ARTICLES

Digestion and Absorption of Milk Triacylglycerols in 14-Day-Old Suckling Rats. *Tak Yee Aw and Murray R. Grigor* 2133
Enhanced Absorption of Calcium by Casein Phosphopeptides in Rachitic and Normal Chicks. *H. M. Mykkänen and R. H. Wasserman* 2141
Effect of Dietary Unsaturated Oils on the Biosynthesis of Cholesterol, and on Biliary and Fecal Excretion of Cholesterol and Bile Acids in Rats. *Chakkodabylu S. Ramesha, Ranajit Paul and Jagannath Ganguly* 2149
Protein Malnutrition and Complement Activity in Guinea Pigs, Germ-Free and Conventional Rats. *Bruce H. Petersen, Ronald D. Watson and Donald H. Holmes* 2159
Effect of Wheat and Bengalgram Diets on Brain Glutamate Metabolism in Postweanling Rats. *K. N. Agarwal and C. Prasad* 2166
Hematological Changes due to Vitamin C Deficiency in *Channa Punctatus* Bloch. *N. K. Agrawal and C. L. Mahajan* 2172
Protein Quality, Food Intake and Growth in Normal and Walker 256 Carcinosarcoma-Bearing Rats. *John D. Radcliffe and Seoras D. Morrison* 2182
Absorption of Iron in Young Men Studied by Monitoring Excretion of a Stable Iron Isotope (^{58}Fe) in Feces. *Morteza Janghorbani, Bill T. G. Ting and Vernon R. Young* ... 2190
Lymph Fatty Acid Composition during Constant Infusion of Saturated Fats of Different Chain Lengths in the Rat. *Shu-Heh W. Chu and D. M. Hegsted* 2198
Effect of Ascorbic Acid in Vitro on Lymphocyte Reactivity to Mitogens. *Irma Ramirez, Ellen Richie, Yeu-Ming Wang and Jan Van Eys* 2207
Effect of an Abuse Dose of Aspartame upon Plasma and Erythrocyte Levels of Amino Acids in Phenylketonuric Heterozygous and Normal Adults. *Lewis D. Stegink, L. J. Filer Jr., George L. Baker and Jean E. McDonnell* 2216
The Biological Activity of 5,6-Epoxyretinoic Acid. *M. H. Zile, R. C. Inhorn and H. F. DeLuca* 2225
Studies on the Influence of Tryptophan and Related Compounds on Hepatic Polyribosomes and Protein Synthesis in the Rat. *Herschel Sidransky, Ethel Verney and Challakonda N. Murty* 2231
Effect of Dietary Protein and Phosphorus Levels on the Utilization of Zinc, Copper and Manganese by Adult Males. *J. L. Greger and S. M. Snedeker* 2243
Nutritive Value of Globin-Amino Acid and Complementary Globin-Cereal Mixtures. *Wendell A. Landmann, Charles W. Dill and Charles R. Young* 2254
Relative Bioavailability of Zinc Using Weight Gain of Rats. *Kay B. Franz, Barbara M. Kennedy and David A. Fellers* 2263
Relative Bioavailability of Zinc from Selected Cereals and Legumes Using Rat Growth. *Kay B. Franz, Barbara M. Kennedy and David A. Fellers* 2272
Effect of *Trans* Fatty Acids on Serum Lecithin: Cholesterol Acyltransferase in Rats. *Carolyn E. Moore, Roslyn B. Alfin-Slater and Lilla Aftergood* 2284
In Vivo Mobilization of Bone Calcium in Thyroparathyroidectomized Rats by 1α,24-Dihydroxycholecalciferol (Calcitriol) and Related Compounds. *Alfred Boris, James F. Hurley and Thelma Trmal* 2291
[^{14}C]-Pantothenate Accumulation by Isolated Adipocytes from Adult Rats of Different Ages. *Barrett Sugarman and Hamish N. Munro* 2297
Differential Regulation of Lipase and Colipase in the Rat Pancreas by Dietary Fat and Proteins. *Malika Ouagued, Bertrand Saraux, Anik Girard-Globa and Geneviève Bourdel* 2302

BRIEF COMMUNICATIONS

Teratogenic Effect of an Inhibitor of Cholesterol Synthesis (AY 9944) in Rats: Correlation with Maternal Cholesterolemia. *Ch. Roux, R. Dupuis, C. Horvath and J.-N. Talbot* 2310
Re-evaluation of the Lysine Requirement and Lysine Utilization by Fingerling Channel Catfish. *Edwin H. Robinson, Robert P. Wilson and William E. Poe* 2313
Altered [^{65}Zn]Chloride Accumulation by Aged Rats' Adipocytes in Vitro. *Barrett Sugarman and Hamish N. Munro* 2317

No. 12 DECEMBER 1980

ARTICLES

Effects of the Source of Dietary Protein on Serum Lower Density Lipoprotein (VLDL + LDL) and Tocopherol Levels in Female Rats. *Anders Eklund and Linnea Sjöblom* 2321
Rat Liver DNA Synthesis during the "Catch-up" Growth of Varied Nutritional Rehabilitation. *Hector G. Jasper and Jo Anne Brasel* 2336
Effects of Alanine on Gluconeogenesis in Isolated Rat Hepatocytes. *Faye M. Dong and Richard A. Freedland* 2341
Effects of Food Restriction on Cardiac Output and Blood Flow to the Uterus and Placenta in the Pregnant Rat. *Pedro Rosso and Ruth Kava* 2350
Influence of Ration Physical Form, Ruminal Degradable Nitrogen and Age on Rumen Epithelial Propionate and Acetate Transport and Some Enzymatic Activities. *James E. Nocek, Joseph H. Herbein and Carl E. Polan* 2355
Ketogenesis from Oleate and Octanoate in Isolated Rat Hepatocytes. *Joseph A. O'Donnell III and Richard A. Freedland* 2365
Effect of Feeding Frequency on Growth and Body Composition of Gastrostomized Rat Pups. *Thomas A. Anderson, Carla J. Raffety, Kevin K. Birkhofer and Samuel J. Fomon* ... 2374
Effect of Heat Treatment on Ruminal Degradation and Escape, and Intestinal Digestibility of Cottonseed Meal Protein. *Glen A. Broderick and W. Michael Craig* 2381
Induction of Rat Liver Glucose-6-Phosphate Dehydrogenase and Malic Enzyme during Blockage of Glycogen Accumulation. *Teresa H. Liao and Bela Szepesi* 2390
Interstitial Pneumonitis Induced by Ingestion of Palmitoyl Glycerol. *Robin Schnitzer-Polokoff, Robert E. Kanich and Samuel B. Tove* 2396
An Amino Acid Diet Supporting Superior Growth in Mice. *Mary A. Hilton and George H. Raque Jr.* 2409
Molecular Localization of Zinc in Rat Milk and Neonatal Intestine. *Bo Lönnerdal, Carl L. Keen, Martin V. Sloan and Lucille S. Hurley* 2414
Calcium and Phosphorus Metabolism in Pregnant Rats Ingesting a High Protein Diet. *Karen L. Graves and Ira Wolinsky* 2420
Effects of Fasting on Uterine Blood Flow and Substrate Uptake in Sheep. *Frank H. Morriss, Charles R. Rosenfeld, Sharon S. Crandell and Eugene W. Adcock III* 2433
Threonine Imbalance, Deficiency and Neurologic Dysfunction in the Kitten. *C. Alan Titchenal, Quinton R. Rogers, Richard J. Indrieri and James G. Morris* 2444
Dietary Selenium and Age-Related Susceptibility of Rat Erythrocytes to Oxidative Damage. *C. K. Chow and C. J. Chen* 2460
Effects of Dietary Protein and Fat Sources on Plasma Cholesterol Parameters, LCAT Activity and Amino Acid Levels and on Tissue Lipid Content of Growing Pigs. *W. A. Forsythe, E. R. Miller, G. M. Hill, D. R. Romsos and R. C. Simpson* 2467
Basic Amino Acid Accumulation in Potassium-Depleted Rat Muscle. *Jacques Arnauld and Paul A. Lachance* 2480
Effects of Prolonged Starvation on Plasma Free Fatty Acid Levels and Fatty Acid Composition of Myocardial Total Lipids in the Rat. *Steven Yaffe, Armand Gold and Joseph Sampugna* 2490
Role of Antioxidants on the Stimulation of the Mitogenic Response. *Laurence M. Corwin and Janet Shloss* 2497
Early Protein Deficiency: Effects on Later Growth and Carcass Composition of Lean or Obese Swine. *Wilson G. Pond, J. T. Yen and Ronald N. Lindvall* 2506
Studies Dealing with Hepatic RNA Metabolism in Rats Force-Fed a Threonine-Devoid Diet. *Herschel Sidransky, Ethel Verney and C. N. Murty* 2514
The Requirement and Toxicity of Selenium in Rainbow Trout (*Salmo Gairdneri*). *J. W. Hilton, P. V. Hodson and S. J. Slinger* 2527
Letters to the Editor 2536
Errata 2539
1980 Author Index to Volume 110 2541
1980 Subject Index to Volume 110 2547